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Medical Progress.

PROGRESS IN TUBERCULOSIS: A COLLECTIVE ABSTRACT OF IMPORTANT ARTICLES PUBLISHED DURING THE YEAR 1916.

BY JOHN B. HAWES, 2D, M.D., BOSTON,
AND
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THERE is so much written on the subject of tuberculosis every year that only the more striking articles and, naturally, those that, in our opinion, were of special importance can be mentioned, and these only briefly. A fairly complete list of references will enable anyone who wishes to go further into the subject to do so without difficulty. The articles reviewed naturally fall into two groups,—those dealing with tuberculosis in adults and those dealing with children, with various subdivisions in each group.

TUBERCULOSIS IN ADULTS.

Early Diagnosis.

It is evident from the articles on this subject that the importance of early diagnosis is coming to be more clearly recognized than ever, and especially the difficulties involved therein. Special tests are of value, but time, patience, and common sense are above all other factors in importance.

Farris[17] emphasizes the fact that early diagnosis is absolutely essential, but that it takes patience and painstaking skill to make such diagnoses properly. He reviews the details necessary in this work and mentions those special procedures to which he attaches importance.

Probst,[53] discussing why early tuberculosis is so frequently not recognized, believes that it is because of ignorance, cowardice, or carelessness on the part of the patient, or on the part of the physician. He makes a plea for a special professorship of tuberculosis in our medical schools, and urges further study of the subject.

Fishberg[19] urges conservatism in making early diagnoses. From the social and economic standpoint, a diagnosis of tuberculosis is a serious affair. It is a traditional fallacy that every case of tuberculosis, if taken in time, can be cured. He believes that there are many non-tuberculous patients in our sanatoria. The stigma of tuberculosis is a serious matter. Suspects should be kept under observation and not immediately rushed off to a sanatorium.

Perkins[49] discusses the various conditions that may present symptoms of tuberculosis and lead to errors in diagnosis. He protests against the common practice of calling all these patients tuberculous on the ground that they may be so, and that in any event treatment as such will do them good.

Hawes[27] urges that each patient suspected of having pulmonary tuberculosis be treated as an individual, and not diagnosed as such according to any routine standard. Constitutional signs and symptoms are of more importance than signs in the lungs. The diagnosis must not be hurried, nor must the physician make up his mind beforehand as to the diagnosis. The early diagnosis requires patience, perseverance, boldness, and, above all, common sense.

Abrahams[1] reviews carefully and in detail the symptoms of incipient tuberculosis and the finer points of auscultation and percussion. He believes (and many will agree with him) that the microscope and the x-ray are more ornamental than useful in this stage of tuberculosis, and frequently delay treatment by their negative results.

Dutton[15] emphasizes the amount of care and skill required to make a correct diagnosis of early tuberculosis. He makes the remarkable statement that percussion is of no value, and that the ear alone is better than the stethoscope. He makes an urgent plea for early diagnosis, but many of his statements would hardly bear analysis.

Gilbert[24] discusses early diagnosis and the various special tests now available to help in such diagnosis. He depends more on the results of careful, detailed history-taking and examination than on any special tests.

Parfitt[48] calls attention to those cases in which the diagnosis of tuberculosis is evident, but in whom some other process is of more importance. Among other conditions, he mentions chronic bronchitis, sinusitis, bronchiectasis, rhinitis, and other conditions of the respiratory tract; complications elsewhere, such as appendicitis, pelvic disorders, and other pathological abdominal conditions, may be of still greater importance.

Barber,[5] discussing the early diagnosis of tuberculosis as it relates to the Navy, finds a discouragingly small decline in the incidence of this disease during the past seven years. It is in the recruiting service that the first steps must be taken to reduce this high incidence. The presence of tubercle bacilli in the sputum is not an early sign, and is no longer a requisite for diagnosis.

Hawes,[28] basing his conclusions on a comparative study of the results of 700 consumptives diagnosed by Massachusetts physicians in 1912, and the results of diagnosis in a similar series in 1915, is able to show distinct improvement in diagnosis and, especially, a great increase in the number of patients who underwent examinations as a routine and before they suspected that they had consumption. Even as late as 1915, however, out of 500 patients, over 50% were not made to understand that they had consumption.

Kahn[31] discusses newer laboratory methods in the early diagnosis of tuberculosis, and comments briefly on their value. The various tests relating to sputum, such as the presence of albumen, ferments, salicylic acid and glycogen tests, he finds of little value; the Arneth classification is too elaborate and the complement-fixation test still in its experimental stage.

Hamblet and Barnes[26] have made an extensive study of the sputum of sanatorium patients, especially those with sputum negative to tuberculosis, with a view of determining how far influenza simulated tuberculous processes in these patients. From a study of 300 sanatorium patients, extending over four years, they find no evidence that influenzal bronchitis frequently simulates or complicates pulmonary tuberculosis.

Lord[37] reviews 549 cases of hemoptysis. Pulmonary tuberculosis occupies first place as a cause; chronic passive congestion, second; and lobar pneumonia, third. Other causes were infarct, aneurysm, new growths, and abscess.

Blaine,[7] discussing the value of the x-ray, states that this method occupies no niche of infallibility, nor does it displace other physical signs; it must be considered with them. He believes that there are signs obtainable by means of x-ray examination which, when taken together and carefully considered, enable us often to diagnose incipient tuberculosis before it can be determined by any other method. Many would consider this too sweeping an assertion.

McCrae and Funk[39] describe in detail five cases of apical bronchiectasis. Tuberculosis was associated in four of these cases. They discuss in detail the difficulties of diagnosis. It might well be imagined that in those cases associated with tuberculosis a diagnosis during life of apical bronchiectasis was not only difficult but impossible.

Lapham[35] urges the importance of the study of tuberculous bronchial glands as the original focus of a subsequently developing pulmonary tuberculosis. She discusses the diagnosis of this condition, and advises no doctor to state that a child's lungs are negative simply because he can find no evidence of pulmonary involvement.

Treatment.

Townsend[60] sums up the advantages of early sanatorium treatment as follows: (1) Careful supervision by experts. (2) Reduction of cost to patient and to the community. (3) Formation of new, healthy habits, and character. (4) The creation of missionaries who spread the gospel of right living in the community in which they live.

Rockhill[54] believes that sanatorium treatment is far superior to home treatment of consumptives and, further, that climate plays only a very small part in the treatment. Judicious teaching of the patient is a necessary part of the treatment of tuberculosis.

Bay[6] discusses that most difficult of all problems that superintendents of large state and city sanatoria have to meet, i.e., that of getting the patients to work, so that they are mentally and physically equipped to take up some occupation after leaving the sanatorium. The article is of distinct interest and value.

Minor[44] urges the use of judgment and common sense in employing rest and exercise in the treatment of pulmonary tuberculosis and the avoiding of extremes in either direction. The guides in this are temperature, pulse, cough, and expectoration, weight and fatigue.

Frazer[21] believes that a thorough knowledge of the principles of rest and exercise must underlie the treatment of tuberculosis. Rest and exercise must be carefully prescribed, after due consideration of all symptoms. Exercise is to be increased only very gradually.

Fish[18] discusses climate and tuberculosis in a sensible manner and urges that every factor—financial, temperamental, and physical—be considered before sending a patient away. "There is no one best climate for all cases," he wisely observes.

Mills[43] discusses the question of climate and tuberculosis from the general point of view of: (1) the physical condition of the patient, (2) the economic circumstances, (3) the place to send him. He is an enthusiastic believer in the climate of New Mexico and western Texas as being the best in most cases.

Pottenger[51] discusses the treatment of various forms of cardiac weakness in tuberculosis. Although he mentions the use of digitalis, caffeine, and other drugs, rest in bed is the most important factor in the treatment of this condition. This he wisely emphasizes.

Shortle[58] describes the widely varying methods of treatment of pulmonary hemorrhage and his own way of handling this complication. Mental and physical rest is essential. Inhalation of chloroform to lower blood pressure, followed by injection of pituitary extract for the same purpose, is then given. Codeine is better than morphine. Epsom salts are freely given, and gelatin is given three times daily.

Browning[11] calls attention to the part played by diseased and carious teeth as foci of infection and portals of entrance in tuberculosis work, and urges that adequate attention be paid to the teeth of all children.

Bonime,[9] evidently an enthusiastic believer in tuberculin, states that he is convinced that in tuberculin we have a positive agent in the cure of tuberculosis, and especially in non-pulmonary disease. Like all enthusiasts, he goes too far and claims too much.

Brosamlen[10] measures the improvement his patients make under treatment with tuberculin by the increase in the number of eosinophiles in the blood after an injection. It might be taken for granted that simpler and safer methods of noting improvement are usually available.

Arkin and Corper[2] fail to find reliable evidence to prove that arsenic has a specific action against tubercle bacilli.

Gardner[23] believes that heliotherapy is now on a firm scientific basis and that, if used with caution and patience, it will prove of value, not only in non-pulmonary, but also in certain cases of pulmonary tuberculosis.

Spaulding[59] discusses the general subject of heliotherapy and reviews the recent work on this subject in a concise and practical way.

Kime[32] urges that sunlight be used more than it is in the treatment of skin diseases and of various forms of tuberculosis. While presenting nothing new, the article is sane and sound.

Farmer,[16] reviewing the general subject of artificial pneumothorax, concludes that, when carefully and properly performed according to the best technic, it is a safe procedure; that it may greatly benefit certain cases not showing improvement by ordinary methods, but that it should be performed before the patient is in a hopeless stage.

Peters,[50] evidently an ardent believer in artificial pneumothorax, reports the results of his four years' use of this method. He believes that this is "the greatest weapon against tuberculosis that has yet been given the unfortunate consumptive."

Armstrong[3] writes more conservatively in regard to artificial pneumothorax than the majority, and his paper is welcome on that account.

Lapham,[36] well known as an enthusiastic believer in artificial penumothorax in the treatment of pulmonary tuberculosis, states her views on the subject and, going still further, urges more careful study into the possibilities of the surgical treatment of consumption.

Packard[46] cites, in great detail, a case of pulmonary gangrene of which artificial pneumothorax seems to have been the immediate cause.

Parfitt,[48] in a detailed and careful article considering the relation of pressure in inducing artificial pneumothorax, advises that not only the effect of pressure in the lung itself be considered, but also the effects on the mediastinum, heart, and blood vessels. He discusses the indications of mobility of the mediastinum.

Pathological and Bacteriological Studies.

Miller,[42] discussing the value of the complement-fixation test in tuberculosis, concludes that it is practically always positive in tuberculous and negative in non-tuberculous cases. It is negative to syphilitics who have no clinically active tuberculosis.

Corper,[14] as the result of an elaborate study of the complement-fixation test in tuberculous and in normal persons, finds it positive in only 30% of clinically definite cases of tuberculosis, active and inactive; but a definite positive reaction, in conjunction with other findings, makes the diagnosis certain. It is also of value in differential diagnosis, as against syphilis, cancer, abscess, etc. In non-tuberculous cases it is always negative.

Krause,[33] as a result of his investigations, has shown that tubercle bacilli can preserve their viability and their original resistance after being kept in a dried state for as long a time as from 15 to 17 months.

Krause[34] discusses the intricacies of the tuberculin reaction, and suggests that the symptoms of the general tuberculin reaction are due to the primary toxicity of focal products, the absorption of which is favored by the focal reaction that results from the injection of tuberculin.

Heise,[29] discussing the cutaneous tuberculin reaction, comes to the conclusion that the quantity of tuberculin necessary to produce a reaction of a given area bears no definite relation to the stage of the disease, and that, therefore, a single skin test, when positive, means nothing but the existence of a previous infection.

Economic, Social and Educational.

Baldwin,[4] discussing the consumptive and his neighbors, shows how much harm and unhappiness may be caused by the stigma of tuberculosis when unjustly applied. He protests against a state of affairs that stamps the tuberculous patient as an outcast and a leper, and is of the opinion that the present attitude of the public in this regard is in no way justified by the facts.

Maher[38] describes the various fields of work being undertaken by the physicians at the Connecticut state sanatoria. Such original investigations and researches should form an important part of the work of every sanatorium physician, and are of great value not only to the institution, but to the medical public.

Gwynn,[25] making an urgent plea for the conservation and protection of the health of school children, gives as necessary parts of any movement in this direction: (1) a full-time supervision, (2) more school inspection and nurses, (3) more fresh-air rooms and open-air schools for both well and tuberculous children.

Rucker,[55] discussing educational methods in regard to tuberculosis and the public, urges that modern advertising methods be used for this purpose just as they are so successfully used in business today. His article is full of practical suggestions.

Pierson[52] urges further institutional care of consumptives and discusses subsidy laws to assist in this process.

Sachs[56] says the prevalence of tuberculosis is, to a great extent, indicative of the general standard of life in that district.

Non-Pulmonary Tuberculosis.

Furniss[22] discusses renal tuberculosis, its diagnosis and treatment. It is a very chronic disease and apt to be latent for a long period. About one-third of patients first consult a physician for pain in the kidney region, and the rest for cystitis and vesical disturbances. Prognosis in cases operated upon is good as regards life, and fair as regards relief of symptoms.

Coleman,[13] discussing renal tuberculosis, urges more care in referring symptoms related to the bladder to the real source of trouble,—the kidney. In 90% of cases presenting bladder symptoms, renal tuberculosis is the last disease to be considered.

Churchman[12] discusses the technic of diagnosis of renal and genito-urinary tuberculosis. He is optimistic in regard to tuberculous renal disease, and deplores the present somewhat pessimistic attitude toward this condition.

Holding[30] is an enthusiastic believer in the use of the x-ray in the non-operative treatment of tuberculous cervical adenitis, and reports numerous cases with good results. He thinks that non-surgical methods, such as x-ray, hyperemia, and tuberculin should be tried before any radical operation is done. He claims rather too much for x-ray in this regard.

Boggs[8] is of the opinion that when tuberculous glands in the neck have become unduly scattered and broken down, the x-ray is the best method of treatment, especially when there is pulmonary involvement. Surgery is necessary in some cases, but the number can be greatly reduced by means of the x-ray.

Metz[40] discusses with illustrative cases the various forms that tuberculosis may take in the eye. He describes the good results of treatment with tuberculin when other methods had failed, and the diagnosis by means of tuberculin tests.

Scott[57] describes in detail a case of tuberculosis of the tongue, and is of the opinion that it is more common than supposed. The differential diagnosis involves consideration of simple ulcers, syphilis, and malignant disease. The rational treatment is surgical except in far-advanced cases secondary to extensive pulmonary disease.

Miscellaneous.

Fishberg,[19] in a somewhat iconoclastic article, protests against ancient and time-worn fallacies in regard to the diagnosis and treatment of tuberculosis. He urges that a sharp line be drawn between infection and disease; that the old idea that healthy adults may be infected in institutions and elsewhere be discarded; also, that if tuberculosis is discovered early enough it can be cured; that the word "pre-tuberculous" be done away with. He urges that more attention be given to constitutional signs and symptoms in diagnosis, and that in children more conservatism be used before saying a child is consumptive, and calls attention to the fact that chronic pulmonary tuberculosis in childhood is rare. Much that he says in this article is sane and timely; there is also much, however, that is dangerous doctrine to spread abroad among the general public and the medical profession.

Michie[41] presents a careful study of the alarming conditions in regard to tuberculosis in an Eskimo village and one of the cleanest in Alaska. He found 61.5% of the children under 15 years of age to be actively tuberculous. He believes that here is one of the greatest fields for medical and missionary work.

Norris[45] brings up to date the important subject of pregnancy and tuberculosis from his experience in a large number of cases in private practice and at the Phipps Institute. He finds that about 20% of mild quiescent cases and 70% of more advanced cases have exacerbations during pregnancy or the puerperium. Tuberculous women should not marry unless the process has been quiescent for a moderately prolonged period, and should not become pregnant unless the disease is in the first stage and has been quiescent for at least two years. Every case must be dealt with individually. Interruption of pregnancy does not insure a favorable prognosis, but greatly improves it. Infants should not be nursed by tuberculous mothers, and at all times should be especially guarded against infection.

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TUBERCULOSIS IN INFANCY AND CHILDHOOD.

Methods of Infection.

Adriance,[1] in a practical and sane article of distinct value to the general practitioner, emphasizes the fact that tuberculous infection begins in early life in the home circle. A positive von Pirquet reaction in early life signifies a bad prognosis. He speaks of the importance of milk as a factor in such infections and urges that the pasteurization of milk be generally adopted.

Minor[16] strikingly emphasizes certain important factors in regard to infection with tuberculosis, such, for instance, as, "Tuberculous infection probably never, and certainly rarely, can occur outdoors," and that even indoors it usually takes a prolonged exposure under unsanitary conditions for *adult infection* to occur. He does not believe that the clean, intelligent consumptive is of danger to those in the house with him *if they are not* children or young people. He believes, therefore, that our attention should be focused on preventing infant and childhood infections, and that our chief problem lies in the question of protecting our children. Kissing children on the mouth should be prevented, milk should be pasteurized, coughing mothers and nurses should be examined; outdoor schools for well children should be encouraged, over-strenuous athletics discouraged. The doctor must not wait for symptoms to develop in the children under his care, but by careful supervision over their habits, school and home life, play and work, and by regular examinations should endeavor to prevent the occurrence of such symptoms. This article is full of sane and sound advice.

Pottenger[21] discusses in detail the part played by the lymphatic system as a protective agent against tuberculous infection and disease. He makes a plea against too early removal of tonsils and adenoids.

Ravenal,[22] discussing modes of infection, states that the intestinal tract in children is a frequent source and that, likewise, to him the tonsils appear to be the portals of entry in many cases.

Ustvedt[26] presents figures showing how much greater[4] is the infant mortality in families where there is an open case of tuberculosis as compared with normal families. While his figures present nothing new, they emphasize the need of removing infants at once from a tuberculous environment. Such figures as here shown are of striking interest and should be utilized in educating parents as to the necessity of such removals.

Von Weller[27] reports two cases of miliary tuberculosis of the placenta, with clinical, though latent, tuberculosis of the mother. He concludes that the transmission of tuberculosis from mother to child prior to birth may not be so rare as usually thought to be the case.

Diagnosis.

Dana[4] is of the opinion that the average general practitioner is not sufficiently impressed with the importance and frequency of tuberculous infection in childhood and, especially, of the difference between infection and disease. He urges that children "below par" for any unexplained cause be given strict hygienic treatment and careful examinations by an expert. He also observes that in almost no case is x-ray evidence alone sufficient, and that it does not distinguish between latent cases and those needing active treatment.

Floyd, Boutwell and George[8] have made a careful and exhaustive study of bronchial gland tuberculosis in a large series of children, with detailed x-ray studies, and have come to sane and sound conclusions. Percussion is of value in the larger masses of glands; d'Éspine's sign need not be present in order to make a diagnosis, but only on a large number of comparatively minor signs and symptoms can a correct diagnosis be made. This article is of great importance and value.

Lapham[15] discusses the symptomatology of bronchial gland tuberculosis and, especially, the relation of such enlarged tuberculous bronchial glands to acute fulminating cases of tuberculous meningitis. She believes that in almost every case careful post-mortem examinations will show a definite relation between the glands and the subsequently occurring meningitis. Likewise, she is of the opinion that spinal disease may be closely related to bronchial gland tuberculosis. She describes the various aches and pains of vague and indefinite nature that may be attributed to these glands by pressure or otherwise.

Morse,[17] discussing d'Éspine's sign, states that the normal change of voice occurs between the seventh cervical and the first dorsal spine. The d'Éspine sign is positive, therefore, when the bronchial voice or whisper is heard below the seventh cervical spine. It is uncommon in children of the well-to-do and, when present, in them is probably not a manifestation of tuberculosis in more than 50%. It is to be doubted if even the opinion of such an authority as Dr. Morse would be concurred with by many of those who have studied this subject. Many believe, for instance, that an increased whispered voice or bronchial whispered voice may be heard as low as the third or fourth dorsal spine and be within normal limits, and that, *in the absence of other signs and symptoms*, the diagnosis of tuberculosis of the bronchial glands is not justified upon a positive d'Éspine sign alone.

Overend and Rivière[19] describe the location of the various glands around the root of the lung, and group them as follows, according to clinical manifestations: (1) normal, with no physical signs, (2) with right paravertebral dulness, (3) with double paravertebral dulness, (4) with parasternal dulness on one or both sides. They describe the features of each of these groups as seen by means of the x-ray. They conclude that thoracic glandular tuberculosis is very common in children of school age, especially in urban districts, but that there are, likewise, notable powers of resistance to control these infections, even extensive ones. They believe that both clinical and radiographic methods of diagnosis are of great and equal importance in diagnosis and should be used together in each case.

Reuben,[23] discussing the diagnosis of tuberculosis in infancy and childhood, is strongly of the opinion that fever is the first sign of such infection in infants, and that its course is a fairly typical one. In such cases, according to his experience, the tuberculin test usually becomes positive at the onset, or a few days after the onset, of the fever, although no physical signs are present at the time. He states that 30 to 35% of such infants survive these infections. The general trend of opinion would hardly support these statements either as to diagnosis or prognosis, although his ideas as to treatment are sound.

Smith and Bibby[24] always tried to answer the following two questions in every case brought to their clinic. Has the child been infected with tuberculosis? This is answered by the tuberculin skin test. Is the infection latent or active? This was answered by a careful study of the history, signs and symptoms which they describe in detail. Impaired nutrition, anemia, undersize, and failure to gain weight are important points. Fever, over a considerable length of time, is suggestive. Loss of appetite, fatigue, are valuable symptoms. Cough and positive chest signs are rare.

Weith,[28] discussing the greater incidence of tuberculosis in Lausanne, as compared with other Swiss cities, raises some interesting questions as to what is to be gained by applying the von Pirquet test to all the children in the city. In view of the fact that upwards of 90% of all children of school age are already infected and would thus respond to such a test, what in particular is to be gained by applying it? He believes, and rightly so, that of far greater importance than this is the elimination of the sources of infection instead.

Treatment.

Dowd[5] reports on the results of 687 cases of tuberculous cervical adenitis treated by a radical operation. His results are good, and he is an enthusiastic advocate of this method.

Gauvain[9] emphasizes the fact that heliotherapy alone cannot accomplish wonders, but that it should be used in conjunction with other methods of treatment. Beneficial effects cannot be obtained unless the skin is pigmented. He gives rules for treatment along the usual lines.

Golden[10] urges more conservative treatment with tuberculin, hygiene, etc.; Morris[10] likewise reports good results without radical surgery, using x-ray, tuberculin, and hyperemia.

Holding[11] is enthusiastic over x-ray and believes that conservative methods should be tried before radical excision.

Howell[12] believes that the primary lesion is represented by a mass of glands, usually around the roots of the lung. The three essentials of treatment are: rest until long after symptoms have disappeared, fresh air, and sunlight. He makes no mention of tuberculin in treatment.

The Weekly Bulletin of the New York Board of Health for June, 1916,[29] describes a group of children under observation at an Italian tuberculosis clinic in New York City, who had been undergoing systematic and regular corrective gymnastic exercises during the year. Such classes and such exercises form an important part of preventive work among children.

Albert-Weil[2] believes in x-ray and conservation surgery.

Pathological and Bacteriological Studies.

Dunn[6] discusses the source and mode of infection by tuberculosis in early life, with special reference to the work of von Pirquet, Ghon, and others. The diagnosis he bases in physical signs in the chest, such signs being absent in nearly 50% of his cases; tuberculin tests, these were negative in 50% of his cases, and x-ray examinations, which were positive in every case.

Eastwood and Griffith,[7] in 261 cases of bone or joint tuberculosis, found the human bacillus in 196 cases, bovine in 55, and atypical forms in 10; in 155 cases under 10 years of age 29% was bovine; in 106 cases over 10 years only 9% was bovine.

Marfan,[18] discussing the occurrence of tubercle bacilli in milk, urges that all cows' milk be boiled or pasteurized, as the most practical method of preventing this source of infection.

Social and Economic Problems.

Jeanneret[13] believes that it is largely by means of the school and the care and instruction of school children in health matters that tuberculosis is to be stamped out. Between the years three and five the lymphatic system prevents any tubercle bacilli from entering the body. Such a child is not diseased, but merely infected or sensitized. It is our task to distinguish between those who are merely so infected and those who are actually diseased because the barriers of defense have broken down. He urges that each child have his health chart and that the von Pirquet test be applied once a year. He describes a system of gymnastic exercises performed in the open air, with the children's bodies stripped to the waist. Such exercises should be largely thoracic. Fully an hour every day should be devoted to this purpose.

Kingsley[14] presents a program for the promotion of welfare of children and the prevention of tuberculosis among them. This work is along the following lines: (1) The creation of institutions and agencies for the care and relief of those who have tuberculosis and for safeguarding their families. (2) The conduct of a vigorous educational campaign, with especial reference to training and educating the child in matters pertaining to hygiene and physical welfare.

Stern[25] urges that measures be taken to decrease the mortality of tuberculosis among children of school age by improving the personal and home hygiene. Teachers and social workers should play an important part in this work.

Prognosis.

While opinion differs as to the prognosis of tuberculosis in infancy, Combe[3] is of the opinion that, while it is very grave, it is not absolutely fatal. The younger the child, the less the powers of resistance. The virulence of the infection is an important factor, while the clinical form of the disease is a still more important factor. If the disease, when discovered, is still localized to glands, the outlook is less serious.

Permin[20] believes that only during the first year of life does a positive skin test indicate a grave outcome.

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Original Articles.

THE RATIONALE OF NEURASTHENIA AND OF DISTURBANCES OF ARTERIAL TENSION.*

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This paper is written to emphasize, to revise and to enlarge upon certain ideas in a former paper entitled "Affective Activity, Emotion, as the Cause of Various Neurasthenic Bodily Diseases." † It will present the fundamental nature of real physical diseases. The medical profession has scarcely begun to appreciate the reality and the tremendous importance of neurasthenic, affective diseases. While their symptomatology is somewhat recognized, their etiology, their nature and, largely, their treatment have suffered the fate which frequently befalls un-understood phenomena of nature—erroneous theories have been offered in explanation and have been devoured with superstitious eagerness. It is safe to say that three-fourths of the people are affected more or less by affective diseases and could be benefited by correct professional attention; that one-half of the people need treatment and that one-fourth of the people are nearing premature death for lack of correct treatment. People having affective diseases need, first for diagnosis and then for treatment, the attention of the physician with broad knowledge of the causes, the pathology, the symptomatology and the treatment of many various diseases.‡ The existence of narrow-minded, fanatical, unscientific, fake therapeutic cults, and their patronage by supposedly intelligent people, is one of the surprising things in an advancing civilization. To the medical profession and to the public, a knowledge of normal and abnormal psychology and the relations existing between mind and body in health and disease is in these days of even greater importance than a knowledge of the exanthemata.

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† Published in the New York Medical Journal of April 4, 1914.

As the scope of the theme of this paper is so large, it must be evident that it will be impossible to go into a complete discussion. You may imagine that I insert at various points, the term "and so forth and so forth," or, as I prefer to say, "*et cetera* and so forth."

Our sensations, ideas and actions arouse in our minds various degrees of two extreme forms of affectivity which have been called pleasure and pain, or pleasantness and unpleasantness. This two-fold nature of affectivity is one of the most important things in all life. Each individual affective reaction may be of short or of long duration. I wish to emphasize the fact that affectivity is not altogether merely an instantaneous effervescence which follows after individual sensations, ideas and actions, but is also a more or less persisting activity. There is at every moment of our lives a constant centrifugal current of affectivity which forms the chief ingredient of the ego. It can no longer be held that affectivity is merely a momentary reaction. The momentary affective reaction is only an episode, a ripple, in the larger incessant stream of affectivity which is, according to nature, the resultant of all our past construction, function and experience. Special attention should be given to the fact that an episodic affective activity may be so strong and persisting as greatly to modify or even quite to replace the previous constant current. Such changes in the constant current produce alterations, more or less radical, in the ego, which may remain within the range of normality or become abnormal. If the ego becomes abnormal it may become merely medically sick, or in addition sociologically sick. Whatever may be the state of the ego the constant current of affectivity is an active, powerful force which radiates from the brain into the glands and muscular tissues of the body, producing peripheral effects which are of fundamental importance to the life of the individual and of society.

When I began practice, about eighteen years ago, but little was known about the autonomic or sympathetic nervous system. I worked out essentially all my ideas about affective diseases, except those on the heart beat, soon after I began work, in 1903, in a clinic having a large number of neurasthenic patients. My discoveries were worked out entirely on a clinical basis with a knowledge of normal psychology, of psychiatry and of general medicine, the two former being far in the background of my mind. The very same month in which my former article was published, a most excellent article entitled "The Interrelations of Emotions as Suggested by Recent Physiological Researches," by Prof. W. B. Cannon, was published in the *American Journal of Psychology*. If one centers his study upon the autonomic nervous system as such he is apt to lose sight of the fact that the nerves and the associated ganglia are to a great extent only a conducting apparatus for emotional impulses originating in the brain. Several articles which have been published in journals and books during the last few years, thus miss this chief point. Cannon's experiments preserve, so far as is possible with animals, the connection between the mental and the organic phases, but, while they show up the fundamental identity of some of the basal emotions of man and beast, such as rage, they reveal but little concerning the finer emotions of man. The initial and the final observations must be made in a clinical way on living man, but the simpler and more limited results of animal study should not be lost sight of. Although much analytical systematization can be accomplished among the various activities of the autonomic nervous system, the whole matter is quite complicated and presents many instances of activities in a circle, and that circle is indeed often vicious.

Emotions may be placed in two fundamental divisions: violent and pathetic. The former is the spirit of opposition; the latter is the spirit of love. The affective activity of violent emotions, or violent affectivity, radiates to the periphery over the thoracico-lumbar, or more commonly called sympathetic, division of the autonomic nervous system. The affective activity of pathetic emotions, or pathetic affectivity, radiates to the periphery over the cranial and sacral divisions. I have chosen the names "violent" and "pathetic," because in the light of animal experimentation and of clinical observation, they seem to be the best generic designations. One might wish for a more appropriate word than "violent," but I do not think of any and, after all, with due regard to its necessarily generic application, it is quite appropriate. It should be noticed that the terms "pathetic," and "sympathetic," apply to a form of affectivity and to a division of the autonomic system, respectively, and that they have nothing to do with each other directly. The term "sympathetic," applied as it has been, is a sad misnomer. These two classes of affectivity are to be observed existing in individuals in a more or less isolated form and in other individuals in all sorts of combinations. Hence, the similarity and the diversity of temperaments. The affective activity of violent emotions produces, among other peripheral reactions, contraction of the arteries and increased force of the heart beat or increased tonicity of the heart muscle. The affective activity of pathetic emotions produces, among other peripheral reactions, relaxation of the arteries and diminished tonicity of the heart muscle. These two sets of phenomena exist, in certain amount, normally, that is, in physiological and psychological normality and from them, just as plainly as 2 and 2 are 4, there develop two pathological forms of affectivity, two forms of neurasthenia, the sthenic (violent) and the asthenic (pathetic).

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‡ See my communication on Mental Treatment by Physicians in The Journal of the American Medical Association of July 3, 1909.

Sthenic neurasthenia may be a term to which you object on etymological grounds, but even on these grounds the objection is not valid for, as you will see, both forms of the disease are asthenic, neur-asthenic, but as compared the one to the other, one is sthenic and the other is asthenic. The qualifying adjective merely distinguishes one form from the other. When a person more or less continuously meets with things which arouse his opposition, whether that opposition is limited to mental work or includes also physical work, the affective radiations of violent emotion take place so intensely that the nervous system becomes more or less exhausted (asthenic), the affective activity becomes more or less firmly established and consequently the arteries become more or less permanently contracted, and the tonicity of the heart increased. That is, a reaction which more properly should take place only in occasional emergencies, may become continuous, and the nervous system become weakened and irritable. The excessive stimulating affective current causes the victim to become excessively active, impatient and restless. The symptoms vary considerably according to the strength of the affective current and the general mentality of the individual. In one, there may be observable only an increased activity in face of business difficulties. At the other extreme, murder may be the startling revelation of violent pent-up affectivity.

The physical manifestations of violent affectivity are to be found also in certain forms of insanity, particularly in dementia praecox, the depressive form of manic-depressive insanity and involutional melancholia. So far as I am aware, existing reports on the condition of the arteries in the insane state that there is no essential departure from the normal. Several years ago, through the courtesy of the superintendent and staff of the Utica State Hospital for the Insane, I made a short study of this subject in that institution. In brief, I found that, although some of the patients having the above-mentioned diseases had blood pressure that was normal, some of them, especially in the two first-mentioned classes, had pressures which were apt to be somewhat above normal, but all the patients in all the classes mentioned had arteries which were contracted. The dementia praecox patients were especially noticeable because their systolic pressures might be considered normal but their pulse pressures were small and their arteries were very much contracted. A case that had had catatonic stupor for three years had a systolic pressure of 95 and a diastolic pressure of 74, and his arteries were contracted very tightly. These findings illustrate a point I have long realized,—the great importance in general practice of looking for arterial tension as well as for blood pressure, and the great importance of using an educated finger together with, or, as a routine to a great extent in preference to, the sphygmomanometer. The tactile estimation of arterial tension apart from blood pressure or, preferably, in connection with blood pressure, is very much neglected. These findings also emphasize a fact which I made in a paper read before this society seven years ago: that neurasthenia and insanity, although characteristically different in some ways and similar in some ways, are both of affective origin and nature. In neurasthenia and in insanity there are the same bodily reactions to disturbing affectivity, but in insanity there is great lack of correct mental adaptation to environment, the mental processes being so fully flooded by the abnormal affectivity. The tightness of the arteries in these insanities is not at all surprising. In fact, it should be expected, for the greater the affective activity of the kind we are now studying is, the greater the arterial contraction always is. Likewise, the greater this affective activity is, the more apt there is to be an increase in the tonicity of the heart muscle (stenocardia) instead of increase in force of the systoles of the heart.

The relations existing between affective activities and the glands producing internal secretions form a very important sub-topic but cannot be taken up in this limited paper.

An example of a complex which does not seem to fit into the rigid classifications formed by animal experimentation on the emotions is seen in patients having arteries relaxed but full, and heart relaxed but acting with increased systolic force which distends the arteries and eventually gives rise to cardiac hypertrophy and high blood pressure. This is a common combination of affective activities. The relaxed heart and arteries usually indicate a more or less pleasurable state of mind and the increased force of the heart indicates a vigorous effort-full state of mind. And yet I have seen this same combination when the relaxation of heart and arteries indicated great loving concern and the great heart force indicated a determination to do all possible. Both of these mental conditions would often give rise to the physical activities noted. The increased force of the heart would indicate the effect of a violent affectivity passing over the thoracico-lumbar nerves, and the other activities, the relaxations, would indicate a pathetic affectivity passing over the vagus. It might be said, in passing, that the varied and apparently contradictory results which physiologists have obtained in stimulating the vagus may be due to the presence of a variety of fibers in the nerve used in transmitting various forms of emotional currents.

Long-continued contraction of the arteries or their distention by the blood stream naturally causes, on account of the resulting compression of the tissues, a diminution of the blood supply of their middle or muscular coat. Although the term "tension" of arteries is used loosely to apply to either or both active contraction or passive distention, tension should be used to apply to the former and distention should be used to apply to the latter. Both tension and distention, and, of course, both together, render the media more or less ischaemic, and this ischaemia leads in time to degeneration of the media and its replacement by fibrous tissue—and here is the secret of arteriosclerosis! By arteriosclerosis, I mean a disease affecting the arteries quite generally, although it may be somewhat more marked in some places than in others. Infections of the arterial walls may cause inflammations which may terminate in replacement fibrosis, but the process is localized and primarily pathologically different from that of arteriosclerosis and should be classified as an inflammation. General arteriosclerosis is in rare instances caused also by other conditions, for example lead poisoning, in which there occurs contraction of the arteries. I shall not waste time or energy to refute the absolutely unfounded theories pertaining to intestinal autointoxication as a cause of arteriosclerosis, but refer to my former article and to the excellent article on autointoxications in the recent edition of Osler and McCrae's "Modern Medicine."

Books on practice express surprise because in case of apoplexy, pulmonary hemorrhage, etc., impaired arteries often rupture while the patient is at rest. This occurs simply because the blood pressure is raised by arterial contraction induced by currents of predominating violent affectivity. In certain neurasthenic patients the violent form of affectivity tightens up the arteries while the patient is reclining, and this may occur very soon after going to bed, at any time during the night, or soon after awaking. Insomnia or restlessness or headache or nausea or polyuria or angina or night fright or dyspnoea, or an attack of disordered heart-beat may be brought on by this unwelcome affective activity and its tightened arteries. Violent affectivity is one of the most terrible despots with which man has to contend. (Predominating pathetic affectivity causes the arteries to relax during rest). It should be observed that the blood pressure readings during rest following exercise should not, as they very, very often are, be used as an index of the efficiency of the heart muscle unless they are carefully analyzed. Blood pressure readings and arterial tension during rest are an index of affectivity even more than of cardiac efficiency, and the same thing is largely true also during exercise. Indeed, the functioning of the heart, from moment to moment, depends much on the present affective currents, and therefore the very muscular condition of the heart at any moment depends much on what have been the past affective currents.

When one meets with things which arouse intensely his pathetic affectivity, as through pained love and grief, the disturbing affectivity, if strong enough, becomes firmly established and exhausts the nervous system and causes, among other things, the arteries to become relaxed, the heart to become relaxed and its systole weakened. Asthenic neurasthenia ("vagatonia") develops, and if it goes on far enough, complete nervous prostration results. In asthenic neurasthenia and nervous prostration the nervous system is weakened both by the disturbing intense affectivity and by the diminished blood supply sent to it by the relaxed blood-vessels and heart.

In marked asthenic neurasthenia, especially in nervous prostration, the physical facts that stand out most prominently are the relaxation of the arteries and the low blood pressure. During recovery this arterial relaxation changes to marked contraction. The blood pressure, on account of the reduced condition of the heart muscle, does not become raised above what is generally considered normal figures for the systolic reading, but the diastolic reading is high in comparison, on account of the contraction of the arteries. (Digital examination of arteries in these cases is important.) The heart takes on renewed activity. These physical changes are due to the gradual subsidence of the excessive pathetic affectivity and the bounding-up of the previously suppressed violent affectivity in the brain cells, and the consequent increased function of the medullary vaso-constrictor center and of the paravertebral ganglia of the thoracico-lumbar division. (A similar reaction occurs during recovery from many severe general diseases during the course of which the various structures of the nervous system have become much impaired.) The increased force of the blood stream causes a very excessive stimulation of all these weakened nerve cells and there results therefrom very great restlessness of mind and body.[*] The extreme contraction of the media of the arteries renders it ischaemic and arteriosclerosis will result unless relief is furnished.

In whatever way the arteries are acted upon by affective currents in the conditions already described, the capillaries tend to be acted upon in the same way. This is an important fact, for it has an intimate bearing on the metabolism and the nutrition of every tissue in the body.

There are certain apparent oddities in the nature of the affectivity and the peripheral reactions which are in various individuals aroused by various mental and physical experiences. An experience which arouses pathetic affectivity in some people may in other people arouse violent affectivity; a slap on the back may be a mere titillation to some, but may stir up great irascibility in others, depending on the individual's interpretation of the act and the dominant affectivity at the time which, so to speak, assimilates the act to itself. A business reverse or a family jangle or other cause for great worry, while being unwelcome to all, may tend to prostrate some and to excite violence in others, according to the prevailing strong affectivity filling the mind at the time of the occurrence and to a greater or less extent on the mental maneuvers of the individual to avoid mental perturbation. Encountering a lion in the wilderness may arouse great fear in two men, but in one the arteries may tighten and in the other they may relax and still either one of them may either run or fight. A certain physical task may tighten the arteries of one man and relax them in another, for to one the work is displeasing or difficult, and to the other it is pleasing and not difficult: the ready accomplishment of a physical or mental task tends to relax the arteries while the great difficulty of a task tends to tighten the arteries. The knowledge that one has a physical disease may make one person wild, while it may prostrate another and not disturb a third. The sexual orgasm may in one person cause relaxation and in another tightening of the arteries. These facts show, among other things, the great importance of the prevailing, fundamental, firmly fixed affectivity which largely determines the manner in which experiences of life shall affect the mind and body.

(The term "surgical shock" is applied undoubtedly to two conditions which are apparently the same but which are really entirely different subjectively. Which one of these two conditions shall appear in any case is determined by the prevailing emotional mechanism in the patient. When the pathetic emotional mechanism predominates, the patient's arteries become relaxed and his heart dilated. When the violent emotional mechanism predominates the patient's arteries become tightly contracted and his heart excessively contracted. Therapeutically, I wish to suggest that convallamarin and adonidin are good remedies to stimulate contraction of the heart and arteries and, of course, nitroglycerine is good to cause relaxation. These remedies are all very quick in action and may be given dissolved in a few drops of water and poured down the throat or may be given hypodermatically with centripetal massage.)

The varied experiences of life, although tending to arouse predominantly in the individual either pathetic or violent affectivity, often arouse in the same individual both forms of affectivity to a considerable degree. The peripheral effects of these two opposing currents, while supplementing each other largely, tend to balance each other more or less and the nervous system may become very much weakened. The resultant condition requires careful analysis by the physician.

A desirable fundamental affectivity, sufficiently well fixed and yet allowing sufficient normal flexibility, is a precious thing and much can be done through various educational channels toward putting it into the minds of many people to the promotion of the happiness of individuals and nations. An affectivity can to some extent be built up, but undesirable affectivities are often most difficult to reconstruct and are among the very greatest calamities of mankind. A knowledge of affective diseases would help those who would use such knowledge to avoid experiences which would arouse damaging affectivity. In a state of sufficiently good health the human will can, indirectly, by regulating sensations, ideas and acts, control, sometimes more and sometimes less, the affective experiences; but when intense affectivity has done its damage, the victim can always recover more quickly and more completely with medical aid and often cannot recover at all without medical aid. I know absolutely that if medical science is given the opportunity, and is given the opportunity soon enough, in each case, it can do undreamed-of things in correcting abnormal affectivity and the dire results to which it leads. The scientific application of stimulation and sedation by various therapeutic measures,—medicines, baths, massage, exercise, rest, psychotherapy,—whatever may be indicated, and the suppression of narrow, unscientific cults, can accomplish the cure of most cases of affectively sick humanity. This is no idle dream. It is a scientific fact. The proper use of sedative and antispasmodic remedies to control the excessive activity of the arteries and heart and the disturbing affectivity can do much toward this end. In treating these ailments it must be realized that affective conditions are complex and that a careful diagnosis must precede an exceedingly careful and painstaking treatment.

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[*] There is no power in the human mind which can, unaided by medicine, control this contraction of the arteries and this great general nervousness, notwithstanding the opinion of a certain man who vociferously asked a patient of mine why she did not use her will and get well! Such a patient can use the will merely like the patient with a broken leg—to place himself in the best circumstances to get well, to let nature, with the assistance of treatment, repair the damage done; that is, he can limit his mental and physical activity to prevent an aggravation of his discomfort, but he cannot hasten his recovery one bit by any mental effort.

The condition of the kidneys should be ascertained, whether they are normal or the seat of nephritis, or whether they have been damaged by the disturbances in the circulation, being slightly injured or irreparably injured by a resultingly sclerotic process.

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INTESTINAL STASIS.*

BY MARK H. WENTWORTH, M.D., CONCORD, MASS.

THERE is no doubt that intestinal stasis is a live question. It is the cause of much depression, lack of vitality, and disease. Nothing that is as serious as this can be considered premature to discuss, yet it is early to make too positive or dogmatic statements as to the results which can be obtained by abdominal manipulation. First, recognizing our physical condition, the problem comes up: How will it best be relieved? Cathartics have been used for centuries; we do not like their use, certainly not their continued use until it has become a habit. Massage has been used to give tone to the abdominal muscles and thus aid in the process of elimination, and as such it has its place; but massage, pure and simple, is not effective enough to be entirely satisfactory. Another objection to cathartics is that in many cases of stasis there is an atonic cecum, with an incompetent ileo-cecal valve and dilated distal ileum. The laxative only drives the feces from the ileum into the cecum, which soon becomes ballooned, and this only aggravates the atonic condition. A purge is followed by constipation, because the canal has been so freed of feces that there is little left for the peristaltic waves to act upon. This complete emptying of the canal is avoided by the procedure of Dr. Edwin L. Drowne of Boston, which can remove adherent masses at the flexures left untouched by other methods. This is quite different from what is ordinarily known as massage; this is confirmed by a nurse, well versed in Swedish massage, who showed the method to physicians in Sweden, and they acknowledged that it was something quite different from their procedures.

Rolling a cannon ball over the region of the colon was, as far as I can learn, first suggested by Sahli. This principle is right, also, only in a limited degree; as, if there is already an impaction at the flexures, it will roll up the masses at these points and make the impaction worse than before. Enemata are, also, helpful, but they, too, cannot reach far enough and are not to be depended upon solely. The ideal answer to prevent the condition from arising is, of course, manual labor in the open air and more normal living; but, unfortunately, our patients won't or can't follow this advice.

The method of deep abdominal manipulation, as developed by Dr. Drowne, has given results which will scarcely be believed. This avoids the errors of the above-mentioned methods, and is so effective as to reach nearly all cases of stasis. My eyes were first opened to the advantages of the method in 1913, when, upon routine physical examination of children in the Boston Dispensary, I noticed that a number of the pasty, underdeveloped, spiritless children had resistant masses in different parts of the large intestine, and I tried the method of breaking up these masses digitally and moving them along until the children were having one or two regular movements a day and their symptoms cleared. These efforts gave me only slightly encouraging returns for some months, or until I had improved my technic, when results became more definite. Formerly, I had rung the usual changes on the cathartics, but with only the usual success, that is temporary, but little permanent improvement. Some of those under manipulative treatment did not begin to show signs of improvement for weeks, but when the mass had once been well moved it was usually comparatively easy to keep the colon free.

Just what method Maggiora,[1] of the University of Turin, used, I do not know, but he reports experiments upon himself in which he states that pétrissage, or kneading, had more influence than any of the other forms of massage.

We know that massage stimulates capillary activity, the general circulation, and the vasomotor system. The muscle walls of the vessels and of the intestines are composed of involuntary fibres, which respond to mechanical as well as to other forms of stimulation when taken from the body; upon mechanically stimulating a piece of resected intestine, characteristic, slow, peristaltic waves are clearly seen; how much more vigorous must these wave movements be in the living tissue! We all recognize that a powerful abdominal muscle wall is an aid in the act of defecation, and as kneading of the deeper tissues necessitates a massage of the muscular walls, our work is doing a double duty.

Douglas Graham[2] quotes Sahli as reporting that he has "cured nearly all his cases of torpid bowels" by the use of the cannon ball and no medicine.

Just how much psychic effect is produced by this treatment it is impossible for me to say, but I know from actual experience the effect regular, deep, systematic manipulations have had on cases of true epilepsy, headache, tonsillitis and mouth-breathing—to mention only a few of the disturbances which have, I will only say, been much better after treatment than before.

An example or two:

Mrs. M., 38, mother of three normal children, gave a negative family history; no psychic disturbances whatever in any branch of her family. Has had convulsions since early childhood, almost never less than several in a month; at one time, daily for over three months. Was very discouraged; husband states: "On the verge of tears most of the time for the past month and more; worse during the past two weeks." Dec. 30, 1915, 1.30 a.m., crying, irrational, is going to die, has made will, etc., etc. Physical examination negative, save colon, which was much distended and resistant. At the splenic flexure was a mass the size of an orange, not much larger than the rest of the canal, but much more resistant. After a week of daily work over the colon and daily enemata she showed much improvement, but was yet far from well. At the end of another week she was so much improved that she wanted the treatment stopped, but we persisted in two or three manipulations a week until Jan. 15, when she seemed so bright and well that her husband said he hadn't seen her so well for years. My arguments for continued treatment were of no avail, and she remained perfectly well till the end of January, when she had another very slight attack—seven weeks of completely normal life. Again all went well until early in June—over four months of rest for herself and family. On June 10, I learned that there had been nocturnal seizures for several nights previous. Physical examination showed the colon again well blocked at the splenic flexure, but nothing like what I had found six months before. She then had daily manipulation until near the end of June, with a complete subsidence of symptoms which, however, had recurred during the first few days of the treatment, not clearing completely till June 15—then six weeks of freedom from the malady. This sort of thing kept up off and on for many months. Near the end of June I called them up and found that the patient had had but one or two transitory seizures since the middle of December, 1916,—another six months' period of comparative ease. That cathartics and enemata would have done the same thing, we know is not the case here, as she had been treated by these very agencies before with less help than she received from the manipulative procedures, both as to the amount of relief given and duration of freedom from symptoms.

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* Read at a meeting of the Chirurgical Society of Boston on June 29, 1917.

Another case of epilepsy:

H. L., 20, single. Family history negative as far as either parent knows. Convulsions began at the age of eight; was under the care of Dr. X. for a year and a half—1909-10—when he was thoroughly saturated with bromides, without more than a dulling of the symptoms, which persisted. The bromides were then completely stopped, and the father reports that the boy nearly died, the convulsions were so violent, and he was so banged and bruised that he stayed in bed for two and three weeks at a time. Again he was put on bromides by his local physician in January, 1916—72 grains a day. He gradually improved somewhat, but in May the attacks began again, getting gradually more and more severe until they were almost every day, and often two or three in a single 24 hours. He came to me the first of November, 1916, and I began at once to give him deep colon manipulations every other day. Although I could determine no actual blocking in the colon, it did not seem as soft and free as it normally should. At the end of a week the seizures ceased, with the exception of four transitory periods of unconsciousness, none of them at all severe, for a whole month. He had not had such a period of freedom and rest for years. In December he had five or six attacks; three of them he said were momentary only, not complete unconsciousness even,—a new phase in the condition, to him. He had but four attacks up to March 2, the last day that I saw him—just nine weeks. The parents admitted much improvement, and the boy said that he felt a distinct change for the better during my work over him. His color and general appearance were certainly changed for the better, and his mental attitude was much brighter than when he first came to me, but as he wasn't "cured" the parents gave up further effort.

During the past year and a half numerous children with chronic sore throats have been given this treatment with apparently more or less permanent relief; cases which had formerly been treated with gargles, sprays, and various drugs. A few children who had been subject to recurring colds and had become mouth-breathers, were treated on the same principle—efforts to increase the elimination and give a better circulation—and it has been met with gratifying results. Nearly all the mothers are enthusiastic, and declare it has been the one form of treatment which has been effective in bringing back the normal health and strength of their children and keeping them in good condition.

It is not at all uncommon to find a bad complexion become worse during the first two or three manipulations, only to clear completely under an extended course, and this, I feel, is in line with the whole theory: more toxins are freed in the intestinal canal by the breaking up of the fecal masses, and as these are not eliminated at once, they naturally are absorbed into the general circulation, the protective mechanism having broken down, causing an increase of the eruptive features. For the same cause, patients subject to headache from intestinal toxemia occasionally complain of more head symptoms during the first few manipulations, only to find themselves entirely freed when the elimination becomes effective.

That these observations have been made again and again in cases of chronic constipation, I am well aware, but cathartics do not affect some of these cases at all, and that is because they fail to remove the impacted fecal masses. I have frequently found masses as large as an orange at the hepatic or splenic flexures which were not affected at all in size or density by a number of different laxatives, but which were broken up and passed along by manipulation, with a consequent marked and usually complete relief of symptoms.

Patients who have had recurring headaches over periods of years, seldom going over a few weeks without one, who have got temporary relief only from the coal-tar products, have come to me: and having made a diagnosis of stasis, I have been able to move on the obstruction, free the bowel, and so to stimulate peristalsis that there has not now, after several months, been any return of the symptoms.

Lane.[3] in his "Operative Treatment of Intestinal Stasis," believes that the large intestine, being the cesspool of the tract, retains its contents a comparatively long time and therefore tends to become displaced, the primary factor being the delay in the passage of the contents. That this condition is not always a purely surgical one, is familiar to all who have read Lane's work, where he states that: "Surgeons not finding a definite ileal kink or controlling appendix, on the presence of which they are likely to place too much stress, jump to the conclusion that there is no obstacle to the passage of material from the ileum to the cecum. Nothing can be more fallacious. The block from accumulation in the cecum is the most important factor, the ileal kink and controlling appendix being superadded features in a large proportion of the cases."

He shows by bismuth x-rays that delay in the ileum in simple stasis may be of very long duration. It is evident, then, that there must be marked changes in the delayed contents in the small intestine, from which we understand most all of the intoxication takes place. He goes so far as to say: "Rheumatoid arthritis . . . is never present except in association with auto-intoxication due to chronic intestinal stasis. . . The thyroid is liable to various infections which cause the several forms of disease of that organ, such as ophthalmic goitre, general hypertrophy, the development of adenomatous tumors, of cysts, and finally of cancer. None of these conditions can arise except in the presence of intestinal auto-intoxication."

Cathartics, large quantities of water, the washing out of the stomach, when material is dammed back and decomposes, and enemata, he calls the essence of the so-called cures, which frequently effect a temporary alleviation of symptoms, but that they are tedious, dangerous, and at best only palliative. "From the surgeon's point of view the treatment of chronic intestinal stasis consists in facilitating the passage of material through the several portions of the intestinal tract and so obviating the mechanical and chemical results, and any fault or faults which may develop along its length consequent on the peculiar mechanical relationship of the individual to his surroundings. . . In the vast majority of cases the use of liquid paraffin . . . the application of some support to the abdomen. . . supplemented by massage," or as I like to term it, "manipulation," it being such a completely different process, "are sufficient for the purpose." After discussing his surgical technic at length, Lane says: "The main principle that guides me in my treatment of these cases is to remove the primary cause of the condition by freeing the ileal effluent. In the vast majority of cases the ulcer, which is the result of the distention of the duodenum, will get well without further treatment." My own experience has not gone that far, but I believe that freeing the bowel by this method will benefit the early stages of an ulcer. It is certainly a natural sequence to rest from irritation which the ulcer will receive by the freedom of the lower bowel from feces, and the consequent relief of the stagnation in the duodenum.

With Dr. Drowne a guest of the society, I do not wish to be too personal, but as in the case of Lane, when his article first appeared, I feel that he was misjudged, and often by those who had not taken the trouble to study his methods and their results more than very superficially. Certainly the evidences of relief obtained in many cases are surprising, and added to these are many more in which it may be premature to claim cures.

If these hypotheses are correct, why is it not much wiser to break up the fecal masses digitally and move on the offending excreta by a simple and purely mechanical method than to use irritating laxatives which, in many cases, do not touch the masses themselves, or immediately to resort to surgery. If the appendix or a Lane's kink is obstructing the lumen, this method will not give the results we see following their surgical removal, and in such cases, of course, surgery has to be resorted to.

The point I want to make is that hundreds of cases have responded, and do respond, to this treatment and have remained without symptoms after many months.

The work is aided by enemata and mineral oil, the only harm from which may be the absorption of the nitrogenous products if it is too long continued.

All patients cannot be handled the same way, but complete relaxation of the abdominal muscles is essential, and where this is difficult to obtain, the usual flexure of the thighs and head may be greatly aided by an occasional course of effleurage when unusual resistance is encountered.

This work cannot necessarily be done by anyone, but needs much practice and more patience before the tactile sense is developed sufficiently to bring the desired results.

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[2] Graham, Douglas: Massage, 4th edit., p. 86 *et sub.*
[3] Lane, W. Arbuthnot: The Operative Treatment of Chronic Intestinal Stasis, 3d edit., 1915.

DISLOCATIONS OF THE SHOULDER, WITH A FEW COMPLICATIONS.

BY F. F. HENDERSON, M.D., BOSTON.

[From the Out-Patient Department, Boston City Hospital.]

ON examining thirty-two cases of fresh and old dislocations of the shoulder joint, with their x-ray plates, it is obvious that the most common complication of the injury is a fracture or a stripping off of the greater tuberosity.

Out of thirty-two cases examined, nineteen show a fracture of greater tuberosity, three show fractures through anatomical neck, the remaining ten show apparently nothing by x-ray.

This paper is an attempt to demonstrate a few of these cases, with their history and treatment.

Before the day of x-ray, this complication was often overlooked, and now that we have x-ray plates before us, it is not always the easiest thing to interpret them correctly. We see now numerous patients, who, in the past, have had a dislocation of the shoulder, who are unable to get perfect motion. Any attempt at outward and upward motion causes severe pain. This is an important factor, as far as the patient is concerned, because of the inability to perform his duties normally. Cases in which we see nothing by x-ray are possibly due to an obscure chip of bone carried off by muscular attachment, and displaced so that it does not show in the plate, or perhaps due to traumatic arthritis.

There is in nearly every dislocated shoulder, after one month's duration, sometimes before a month, considerable arthritic change. All the bones in this neighborhood show a general thinning, with more or less proliferation, sometimes going so far as to produce exostoses, as is shown in the following plates:

Another rare complication is injury to the muscular spiral nerve, which will be demonstrated in one of the reported cases.

The motion most often complained of by the patient is the outward and upward. The failure to obtain this motion is due to the fact that, not only does arthritic change take place, but also the callous production resulting from fracture, and possibly stripping off of periosteum about the head of the bone, with callous production, all tending to obstruct outward and upward motion.

Paper hangers and painters are particularly subject to this kind of fracture, and it almost always prevents them from carrying on this kind of work.

Another observation that stands out very plainly in the history of these cases is the fact that in damp weather the trouble seems to be markedly increased. This, without doubt, confirms to a certain degree our idea regarding the arthritic tendency which these people have. Another obstruction we meet is the destruction of ligaments, of which the capsular ligament (the one that undergoes the most marked change) is the one for the repair of which we can do little or nothing.

Case 1. Through the courtesy of Dr. Arthur Kimpton, I am able to show this plate of an old dislocated shoulder with fracture and dislocation of greater tuberosity, with marked stripping and proliferation of periosteum forming large exostoses extending over the scapula. Another notable change is a marked transparency of the head of the humerus, with outer end of clavicle and acromion process.

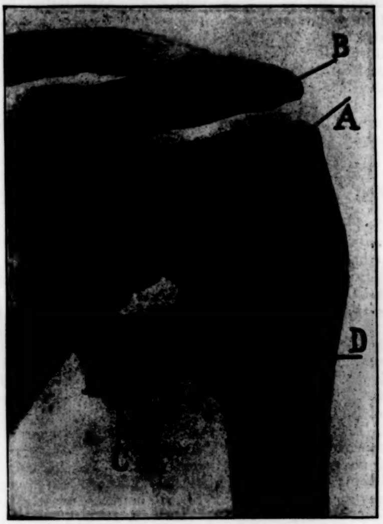

Plate I. Case 1. *A*—Fractured and displaced tuberosity. *B*—General thinning of the acromion process with outer end of clavicle. *C*—Exostosis. *D*—Proliferation of periosteum.

Case 2. On March 25, 1916, patient fell downstairs, landing on his left shoulder, which was dislocated. A physician attempted reduction, without success, after which he was referred to the Out-Patient Department of Boston City Hospital. Examination shows him to have a subcoracoid dislocation of the left humerus. Reduced under anesthesia. Axillary pads and shoulder cap applied. Arm fixed to side with adhesive, arm and hand suspended in sling. X-ray shows head of humerus to be in normal position, with chipping off of a part of the greater tuberosity.

April 8, apparatus removed. Patient received

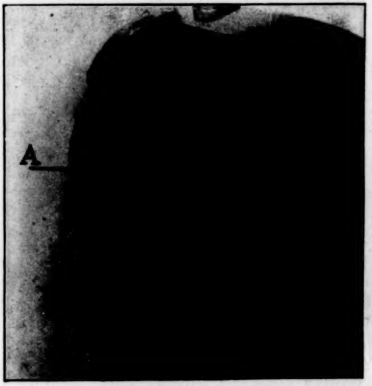

Plate II. Case 2. Fractured dislocation of greater tuberosity with an unrecognized fragment which has been carried out of sight by muscular attachment.

slight passive motion, with much pain and limitation of motion; apparatus reapplied. April 17, all apparatus removed. Complains of severe pain on the least possible motion. Gentle passive motion with use of alcohol and hot fomentations to shoulder at home. Arm suspended in sling.

April 24, all pain and tenderness greatly improved, but still severe pain and tenderness on extreme motions. Massage every second day.

Case 3. J. B. Patient said to have fallen downstairs, dislocating his right shoulder; referred by his physician to the Out-Patient Department of the Boston City Hospital. On examination, presents subcoracoid dislocation. Reduced under anesthesia; arm put up in sling in usual way.

Dec. 27. X-ray shows head of humerus in normal position, spicular bone torn from greater tuberosity. On Jan. 4, 1917, apparatus readjusted. Jan. 11, 1916, gentle passive motion; apparatus reapplied. Jan. 18, all apparatus removed, patient complains of severe pain on slightest motion; double sling applied. Patient advised to use slight passive motion and massage at home, also to receive massage and electricity at the Hospital. Feb. 2, 1916, pain, tenderness and motion all greatly improved. All dressings removed; advised to continue with same treatment. March 28, 1916, condition slightly improving; to continue with same treatment. May 12, 1916, all motions greatly improved; same treatment. May 12, 1916, all motions greatly improved. Slight pain. July 6, 1916, condition of arm about the same.

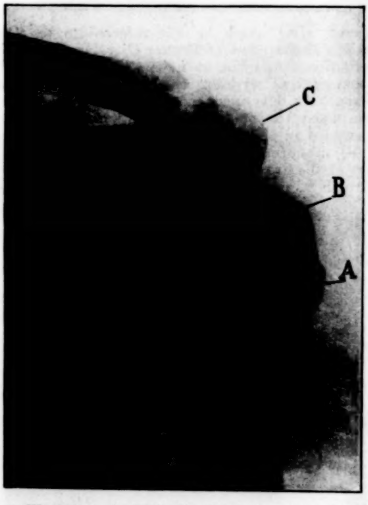

Plate III. Case 3. *A*—Small strip of periosteum undergoing bony changes. *B*—Old fractured tuberosity. *C*—illustrates the bony changes (hypertrophic arthritis).

Case 4. J. G. Patient states he fell on the ice. On extending his left arm, to break his fall, he received a dislocated shoulder. He called to see his own physician, who advised hospital treatment. Entered Accident Department of the Boston City

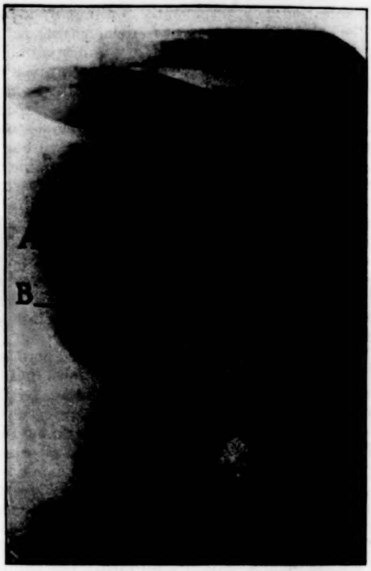

Plate IV, A. Case 4. *A*—Dislocation of head. *B*—Fracture of greater tuberosity.

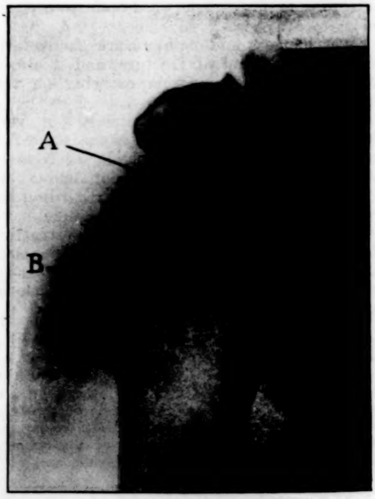

Plate IV, B. Case 4. *A*—Showing head of bone in normal position. *B*—Fracture of greater tuberosity, with slight displacement.

Hospital, where, on examination, showed a subcoracoid dislocated, reduced by Kocher method. Apparatus applied as in the above case. Feb. 9, complains of severe pain on slightest motion. On Feb. 16, one week later, pain slightly diminished. Limitation of motion as above. On Feb. 23, motion slightly improved, considerably less pain. Receives slight passive motion, all apparatus omitted, save for sling. Advised to use slight passive motion and to apply alcohol and hot fomentations at home. March 1, slight improvement since last visit. All apparatus omitted; massage, electricity, passive motion. Patient two weeks later shows considerable improvement, still far from normal, extreme motion producing severe pain.

Case 5. Patient states that on Jan. 23, while wrestling with a friend, she had her arm twisted, receiving a dislocated shoulder. She came directly to the Out-Patient Department of the Boston City Hospital. Examination shows her to have subscapular dislocation of the shoulder, with a slight crepitus over head of bone. Reduced under anesthesia. Axillary pad applied to shoulder. Arm held to side with adhesive. Arm and hand suspended in sling. Jan. 24, x-ray shows head of humerus to be in normal position, with fracture and dislocation of greater tuberosity, which apparently is carried up into the joint.

Consultation with Dr. F. B. Lund, who advised immediate operation. Patient returns for operation on Jan. 27, 1916. Incision made over seat of fracture; the entire tuberosity found to be imbedded in joint. Bone replaced to normal position, and held in place by three wire nails. Wound closed in usual way. Dressing applied, axillary pad, shoulder cap and arm held to side by adhesive. Arm and hand supported by sling. After remaining one week, was discharged to return to Out-Patient Department. On Feb. 5, returns to Hospital; wound found clean and entirely healed. General passive motion, Feb. 11, 1916; all apparatus removed. Patient receives gentle passive motion, with a great deal of pain. Arm suspended to side by double sling. X-ray shows tuberosity to be in fair position. Feb. 18, sling removed. Patient complains of severe pain on slightest motion. Sling reapplied.

Feb. 25, all pain and tenderness considerably less; motions improving very slowly. Advised to use passive motion at home, and hot fomentations to shoulder, with massage and electricity at Hospital every other day.

On March 10, 1916, still complains of severe pains, and tenderness in shoulder. All motions steadily improving. Patient is using arm daily around house, but unable to extend arm to head. Advised to continue with same treatment.

April 10, 1916, patient has less pain in shoulder, most marked pain in attempting to use arm in the morning. Motion still slowly improving.

June 8, 1916, patient has practically no pain save on extreme motion.

July 15, 1916, still has pain on extreme motion; manipulation of arm causes excessive pain.

Advised to massage arm, and attempt ladder climbing, with disabled arm.

Aug. 28, 1916, motions of arm markedly improved. To continue with same treatment. On Oct. 28 condition remains about the same, with possibly a slight improvement. Still having considerable pain on extreme motion.

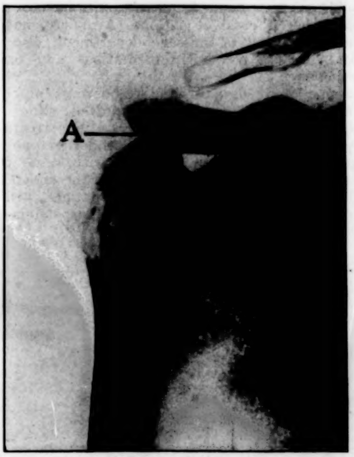

Plate V. Case 5. *A*—Showing fracture of greater tuberosity, with displacement of fragment into joint before operation.

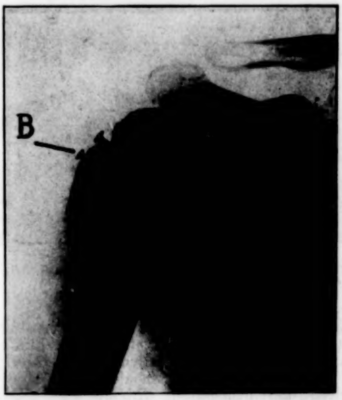

Plate V. Case 5. *B*—Showing fragment in fair position, held in place with three wire nails.

Case 6. L. M. Patient states he fell through hatch hole in ship, dislocating his left shoulder. He was taken to the Haymarket Relief Station, where a dislocated shoulder was found.

Reduction without anesthesia, on Aug. 4, 1916. Aug. 5, x-ray shows head of humerus to be in normal position, with fracture of greater tuberosity with slight displacement of fragments. Fracture put up in ordinary way. Aug. 12, 1916, apparatus readjusted. Aug. 21, all apparatus removed, slight passive motion; apparatus reapplied. Aug. 29, all apparatus removed.

Patient complains of pain in shoulder joint on slightest possible motion. Arm fixed to side with double slings. Sept. 5, patient still has considerable pain on passive motion. Arm suspended in sling. Referred to massage department, also electrical, and to use hot fomentations and passive motion at home.

Sept. 12, 1916, pain and tenderness much reduced, with motions slightly improved; sling omitted. Advised to use arm, and continue treatment. Sept. 24, pain, motions, and tenderness steadily improving; advised to continue with same treatment at home, and at hospital, with the addition of ladder climbing. Oct. 18, 1916, patient still has pain in shoulder on extreme motions; advised to continue with same treatment.

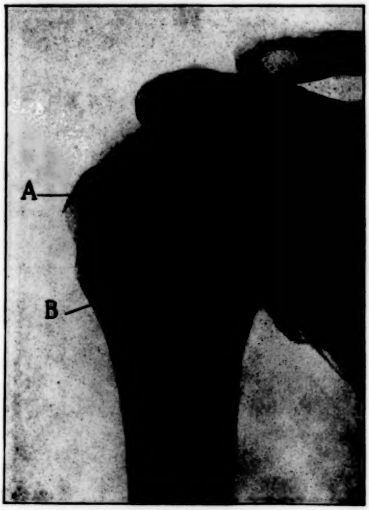

PLATE VI. CASE 6. *A*—Shows fracture of greater tuberosity. *B*—Comminuted fracture of head of humerus.

CASE 7. M. S. Patient states that on July 29 he tripped, and caught his heel, throwing him headlong against a rock. On attempting to break his fall he dislocated his right shoulder. His physician reduced the dislocation without anesthesia by Kocher method, after which arm was bound to side with double sling.

Reports to Out-Patient Department of the Boston City Hospital one week later. X-ray shows fracture of greater tuberosity. Arm shows marked limitation of motion. Patient unable to raise his arm above 45°. On arriving at this point he complains of severe pain in shoulder joint, also pain radiating from shoulder down over deltoid muscle to posterior surface of arm.

Axillary pad, shoulder cap, arm fixed to side by applications of adhesive plaster. Hand and arm supported by sling. Returns to Hospital one week later with less pain on motion; limitation of motion remains about the same as previous week.

All apparatus reapplied; returns to Hospital one week later. Aug. 9, pain less severe, motions slightly improved; apparatus all removed, save for sling.

Received gentle passive motion; advised to use same motion at home, with application of alcohol, and hot fomentations to shoulder.

Aug. 27, patient returns with slight improvement. On Aug. 28, he received massage, passive motion, and electricity. This last treatment he received every other day for one month, without any noticeable improvement, save for possible increase of motion.

At the end of three months, with almost continual hospital treatment, and massage at home, patient is able to raise his arm to about 80°.

At the end of one year still lacks his normal motion, and complains of pain in shoulder upon rising in morning, which lasts until he has used his arm an hour or so.

CASE 8. J. D. Patient states that on March 25, 1916, he fell downstairs, landing on his left shoulder, from which he received a dislocated shoulder. Patient called in his own physician, who attempted reduction, without success, after which he was referred to the Out-Patient Department of the Boston City Hospital. Physical examination showed him to have subcoracoid dislocation of left humerus. Under anesthesia dislocation was reduced. Axillary pad and shoulder cap applied, arm fixed to side with adhesive. Arm and hand suspended in sling. X-ray shows head of humerus to be in normal position, with chipping off of a part of the greater tuberosity. April 1, patient returns; apparatus readjusted. April 8, patient receives slight passive motion, with much pain and limitation of motion.

April 17, all apparatus removed. Patient com-

PLATE VII. CASE 8. *A*—Fracture of greater tuberosity.

plaining of severe pain on the least possible motion. Gentle passive motion, with advice to use alcohol and hot fomentations to shoulder at home. Arm suspended in sling.

April 24, pain and tenderness reduced; all motions much improved, but still severe pain and tenderness on extreme motions.

Referred to massage department, where he received massage every other day .

TREATMENT.

The treatment of these cases is not always an easy one, because of the marked inability, and obstruction to anything near normal motion. They require a long, tedious course of treatment, the end of which is not always pleasing to the operator.

The x-ray is of the utmost importance in determining between simple dislocation or dislocation with fracture. I have already shown that the majority of dislocated shoulders are accompanied by fracture of the greater or lesser tuberosity.

The operative cases are those in which a large fragment is torn off, and displaced so that the normal position of the arm will not reduce the fragment to a point near that from which it was detached. In such a case the fragment is reduced by open operation, held in place by ordinary wire nails.

Smaller fragments which are torn off and carried into the joint, where they offer obstruction to motion, are removed by open operation.

Exostoses which form as a result of stripping of the periosteum are also removed as above. In all cases where an operation has been performed for removal of obstruction to the outward and upward motion, the arm is put up as high as possible, and retained in this position by a plaster cast, which should be cut at the end of two and one-half to three weeks, when the patient should receive a slight amount of passive motion; this treatment to be continued from four to five weeks.

Fractures without any marked displacement may be treated satisfactorily by the ordinary method of placing the arm to the side, applying a shoulder cap and double sling. The dressing is allowed to remain in this position from two to three weeks, when apparatus is removed, and they receive gentle passive motion every third day until the end of the fourth week, when all apparatus is omitted.

The operative and non-operative cases all receive massage and electricity, with passive motion, every other day, and are instructed to attempt ladder climbing or slight pulling on a rope above the head. There is still another class in which we see no fracture by x-ray at the time of injury. Many of these cases are treated as uncomplicated dislocations, but later, in the course of weeks or months, return to the clinic with inability to get anywhere near perfect upward and outward motion.

The x-ray of such cases usually shows a great deal of thickening about the joint surfaces, with marked proliferation about the greater tuberosity, and also an acromion process.

Another noticeable change is general thinning of all bones in this region. The treatment of such cases is very difficult because of the long duration, and marked proliferation causing obstruction.

Such cases should receive a fair trial on ordinary treatment, such as massage, electricity, and extreme passive motion. If satisfactory result is not obtained, the arm should be manipulated under ether, and put up in extreme extension and plaster, and allowed to remain from two to three weeks, then treated as any ordinary operative case, as stated above. In the above cases you will notice by the description of the x-ray that there is considerable arthritic change which has taken place, apparently stimulated by trauma.

Muscular spiral injury to these cases is rather rare, but does occur, and is well looked after, usually by massage and electricity.

The nailing of fragments in or near joint surfaces has apparently no ill effects in the motion of the joint, following such procedures as recommended in an article written by Dr. Arthur T. Mann, of Minneapolis, published in *The Journal of the American Medical Association*, Oct. 14, 1916.

Dr. F. B. Lund, of Boston, also has cases and x-rays which affirm this method of treatment.

THE ETIOLOGY AND PATHOLOGY OF PERFORATING GASTRIC AND DUODENAL ULCERS.*

By Franklin W. White, M.D., Boston,

Instructor in Medicine, Harvard University; Visiting Physician, Boston City Hospital.

We are dealing with the complication of ulcer, which is the most dangerous, and requires the most prompt attention.

Type.—The usual text-book statements refer almost entirely to acute, and occasionally, subacute perforations. This is the least common kind. New data are just appearing—thanks to the use of the roentgen ray—which show that we have another type of perforated ulcer, namely, the *chronic* perforations, which are twice as common and much less dangerous.

The pathology of acute perforation is well known. In the chronic perforations of the ulcer we have a leisurely destruction of the coats of the stomach or duodenum, and by the time the stomach wall is eaten through, the site is protected by lymph, adhesions and induration, and general peritonitis rarely occurs, and only occasionally a local abscess, sub-diaphragmatic or otherwise. The location of the perforated ulcer is about equally often in the stomach and duodenum.

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* Read before the Massachusetts Society of Examining Physicians, January 26, 1917.

Location.—The acute perforations are largely at the pyloric end of the stomach and almost all on the anterior wall of the stomach, usually nearer the lesser than the greater curvature. In the duodenum the acute cases are almost all on the anterior wall.

The chronic perforations are found in the stomach most frequently at the common site of chronic ulcer, namely, along the lesser curvature and near the pylorus, and in the duodenum near the pylorus.

The chronic perforations are easily seen with the roentgen ray and, of course, are the only type which the radiologist sees or describes. They show as little canals, or buds or pouches growing out of the lesser curvature of the stomach or of the duodenum. They are definite and characteristic. Chronic perforations can be discovered only by the use of the roentgen ray or by operation. We must be careful in looking at the roentgen picture not to confuse the narrow crater of an ulcer with a true perforation. We must remember the thickness of the stomach wall caused by induration and infiltration. We may have a deep crater without going through the wall. In the duodenum we may have much irregularity of the first portion without an actual perforation. Ordinarily, however, there is no real difficulty in distinguishing a perforated ulcer from one with a deep crater.

Carman has called attention to the fact that if the ulcer is high up on the anterior wall or lesser curvature, it tends to perforate against the liver and the little pouch can be seen to move with respiration. If the perforation is low and posterior, for example, into the pancreas, it does not move with respiration.

Frequency.—Chronic perforation of ulcer is common; in 74 cases of chronic ulcer of the stomach and bowel which I have seen and in which a careful roentgen examination was made, there were nine cases of chronic perforation, 5 gastric, and 4 duodenal, namely, about 12%. In reading this per cent., we must remember that this does not by any means hold true for *all* ulcers, but gives the per cent. of chronic perforations in a group of rather serious chronic cases seen by a consultant. Recent figures from The Mayo Clinic, where the material is more definitely surgical, are even higher; namely, a little over 17% of chronic perforations in gastric and duodenal ulcer.

Eusterman's[1] figures on perforated duodenal ulcers show that out of over one thousand ulcers (778 duodenal and 324 gastric) 28% of the duodenal, and 25% of the gastric, perforated. Of these, 17% of the duodenum were chronic, and 9% acute and sub-acute; and of the gastric, 19% were chronic and 6% acute and sub-acute. In short, taking the stomach and duodenum together, there were about twice as many chronic as acute perforations in the stomach and duodenum.

Symptoms.—We will leave the discussion of the symptoms, diagnosis and treatment of *acute* perforation to our surgical colleagues. The acute, violent pain, the abdominal rigidity and tenderness, the rapid pulse, and the signs of peritonitis are well known. Also the difficulty in distinguishing an acute perforated ulcer from appendicitis, acute pancreatitis, or disease of the gall-bladder. In the sub-acute cases the symptoms are similar but less severe and acute.

In the cases of chronic perforation there are no characteristic symptoms beyond those of a chronic ulcer of the stomach or duodenum, unless the perforation extends and forms a deep abscess. This is unusual, as the perforation is ordinarily thoroughly walled in and limited by dense adhesions. We cannot distinguish an ulcer with a chronic perforation from a simple chronic ulcer save by the use of the roentgen ray.

The course of an ulcer is highly individual. We cannot tell in a given case whether or not the ulcer will heal, will become chronic, will perforate, or will develop cancer.

The medical treatment of chronic ulcer, including perforations, depends on these fundamental questions:

What are the causes of ulcer of the stomach and duodenum?

What prevents their healing?

What are the immediate causes of perforation?

What can we, as physicians, do to heal peptic ulcer and prevent perforation?

Cause.—Most of the recent work points to infection as the cause of ulcer. Bacteria are found in the ulcers and in the deep lymphatic glands. Ulcer is frequently associated with other infections such as the gall-bladder or appendix, or chronic foci of infection about the teeth, tonsils and nose, and evidence is increasing that ulcers may also be due to toxines from infections elsewhere in the body.

Various men have produced ulcer of the stomach by infection with bacteria, such as colon bacilli, pneumococci, etc. Some of the most clean-cut and recent experiments were made by Rosenow,[2] who injected dogs and rabbits with streptococci from ulcers of the stomach and duodenum of man, and produced ulcers of the stomach and duodenum in 60-70% of the animals injected.

Healing.—What retards or prevents healing? Probably 75% of acute ulcers heal. We deal with the 25% which do not heal, but which recur and become chronic. Why does this occur? Experimental ulcers produced by streptococci, pneumococci or colon bacilli heal rapidly. Hamburger[3] has recently shown that acute ulcers in dogs heal normally in two or three weeks. In those with artificial pyloric stenosis with associated hyperacidity or hypersecretion the ulcers remain unhealed at the end of eight weeks or more and the ulcers are worst when the emptying of the stomach is slowest. Position also is important. Acute ulcers of the fundus healed quickly and only those close to the pylorus were uniformly unhealed. These experiments emphasize slow emptying of the stomach, hypersecretion and position near the pylorus as the important factors which prevent the healing of an ulcer.

Immediate Causes of Perforation.—It is frequently stated that a strain or wrench, or muscular effort or heavy meal may be the immediate cause of a perforation. A heavy muscular effort will, without question, increase the pressure within the hollow organs of the abdomen, including the stomach. A sudden blow may, also, compress the stomach between the front and back wall of the abdomen and greatly increase pressure within the stomach. Even active peristalsis may increase the pressure near the pylorus for a short time. This increased pressure may break through a weak spot in the wall.

As a matter of fact, about two-thirds of the acute perforations actually take place at night, when the patient is quiet or in bed. Other perforations, which take place in the daytime, may simply occur *during* work, but not necessarily as a result of it.

In one case which I saw, where symptoms of perforation of a deep gastric ulcer followed a few hours after the use of the stomach tube, the first thought was that the tube had caused the perforation. At operation, which was immediately done, an ulcer was found on the anterior wall of the stomach near the pylorus with a deep, narrow crater, too narrow for a tube to get into it; the bottom of the ulcer consisted of a paper-thin layer of peritoneum, with a small, round hole in the middle of it. The smooth, round hole suggested erosion, not a tear from violence, and the perforation seemed to follow the patient's dinner rather than the tube.

There are individual anatomical and mechanical factors in every case, such as the depth and position of the ulcer, the thinness of its base, the presence or absence of adhesions, which largely determine the time and mode of perforation.

Treatment.—The key-note of medical treatment in such cases is prevention. We must try to heal the ulcer and prevent perforation. This is not the place to enter into the details of medical treatment. I will briefly state the principles.

We must treat the patient, as well as the ulcer, and remove all foci of infection in the mouth, throat and nose, appendix or gall-bladder.

The local treatment of ulcer should be thorough, systematic and detailed, like the treatment of diabetes; half-way measures give poor results. The principles of this treatment are as follows: Be sure that the stomach empties promptly, greatly lessen or remove all free acid by the use of suitable drugs and foods, and lessen mechanical irritation so far as possible by a bland diet. Gastroenterostomy succeeds just in so far as it does these things. Thorough systematic medical treatment along these lines will heal ulcer of the stomach and duodenum and prevent perforation in more than one half of the cases.

In some absolutely latent cases of ulcer it is impossible to prevent perforation. I recently saw one such case in a physician in whom the first symptom of any indigestion was the perforation of a duodenal ulcer.

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ON THE USE OF THE EMANUEL-CUTTING MASTICHE TEST IN EXAMINING SPINAL FLUID FROM PSYCHOPATHIC SUBJECTS.*

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AND

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In 1915, one of us (Lowrey)[1] investigated the Emanuel mastiche test on the spinal fluid of the insane. At that time the conclusion was drawn that the test was not a valuable addition to our diagnostic armamentarium. This conclusion seemed justified by the fact that there was difficulty in determining what was a positive reaction, and the positive reactions did not check with other tests in the spinal fluid. Recently Cutting[2] has published an article in which he proposes a slight modification of the original Emanuel test and states, as a result of his examination of two hundred spinal fluids, that the test is of considerable value in the diagnosis of syphilis of the nervous system. His table shows no cases diagnosed as paresis, cerebrospinal syphilis or tabes giving a negative mastiche, although fourteen of this general group gave a negative Wassermann. Further, he has no non-syphilitic cases with negative Wassermann tests which gave a positive mastiche.

Accordingly, it seemed to us desirable to reinvestigate the test according to the modification proposed by Cutting. His method is as follows:

"A stock mastic solution is made by dissolving 10 gm. of gum mastic in 100 cc. of absolute alcohol, and then filtering. This stock solution keeps indefinitely if well corked. To 2 cc. of this solution 18 cc. of absolute alcohol are added, and insufflated rapidly into 80 cc. of distilled water. This makes an emulsion of mastic which is opalescent when held to the light. This solution can be used immediately or after several days; indeed, the reactions seem to be more easily read when a solution is employed which has stood for at least a few hours.

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* Contribution of the Massachusetts Commission on Mental Diseases, No. 195 (1917.15).

Next, a 1.25% sodium chlorid solution is made with distilled water, and to each 99 cc. of this salt solution is added 1 cc. of a 0.5% solution of potassium carbonate made up with distilled water.

Then six small test tubes are placed in a rack. These tubes should have been washed thoroughly in tap water, then in denatured alcohol, to remove any old mastic adhering to the sides of the tubes, rinsed in distilled water and dried, conveniently in a hot-air oven. To the first tube 1.5 cc. of the combined salt and potassium carbonate solutions are added, and to the other 1 cc. each. Then 0.5 cc. of spinal fluid is added to the first, and, after thorough mixing, 1 cc. is transferred from the first to the second, 1 cc. from the second to the third, and so on, the last cubic centimeter that remains over from the next to the last tube being thrown out, and no spinal fluid being put in the control. Now to each tube, 1 cc. of the mastic solution is added and stirred thoroughly with a glass rod, care being taken to wash the rod with distilled water before going to the next series. It is best to finish each group before beginning another.

The racks are set away, and in from twelve to twenty-four hours the end-results can be read. If the racks are placed in an incubator at 37.5° C., the precipitation is complete in from six to twelve hours."

We have tested the fluids from 268 patients admitted to the Psychopathic Hospital. Of these, 74 fall into the general group of syphilis of the nervous system, the majority of the remainder being non-syphilitic psychopaths and non-psychopaths, with the addition of three cases of acute meningitis. The results are presented in tabular form in Table I.

Table I.

Result of the Mastiche Test in 268 Spinal Fluids.

Classification	No.	W. R. Blood	Gold	Mastic
Paresis	54	+	+	+
Paresis	13	—	+	+
Neurosyphilis	6	+	+	+
Tabes	1	+	+	+
No psychosis	9	—	—	—
Dementia praecox	34	—	—	—
Dementia praecox	1	+	—	—
Manic depressive psychosis	23	—	—	—
Manic depressive psychosis	1	+	—	—
Manic depressive psychosis	4	—	+	—
Paranoia	9	—	—	—
Unclassified	20	—	—	—
Unclassified	1	—	+	—
Unclassified	1	+	—	—
Arteriosclerotic	6	—	—	—
Arteriosclerotic	2	—	+	—
Feeble-minded	26	—	—	—
Feeble-minded	1	+	—	—
Feeble-minded	2	—	+	—
Epilepsy	11	—	—	—
Traumatic	2	—	—	—
Meningitis	3	—	+	+
Alcoholic psychosis	10	—	—	—
Chronic alcoholic	9	—	—	—
Chronic alcoholic	1	+	—	—
Psychopathic personality	16	—	—	—
Chorea	1	—	—	—
Toxic psychosis	1	—	—	—

In all of our cases the following tests were made: Wassermann test in blood and spinal fluid; albumen, globulin, cell count and colloidal gold tests in spinal fluid.

We have recorded all tests as + or — in the table, and have compared only the Wassermann and gold reactions. While a more elaborate analysis is possible it seems unnecessary for the purposes of this paper.

A normal fluid causes no change in the mastiche test solution in any tube. The control tube does not precipitate, as was the case using the original method. Between the unchanged and the maximum change, *i.e.*, complete precipitation with clear supernatant fluid, we may recognize certain gradations. Thus in many cases there is produced a very marked clouding, through which light is not transmitted. In another type, light is very faintly transmitted. Again, there may be a perceptible clouding with fairly good transmission of light. Finally, there may be a change so faint that it is recognizable only on comparison with the control. These changes can be noted by the number system, as in reading the gold reaction. We then have a series, ranging from 5 to 0, and can compare mastiche and gold curves, if such exist.

Because of certain technical facts, our comparisons cannot always be exact, hence no general table of comparisons is introduced, but, instead, we shall compare certain types of reaction with one another.

We have regarded as positive all cases showing marked clouding in 2 or more tubes. Some of our fluids tested fresh have shown precipitation, and after some stay in the ice-box have shown only clouding. In positive cases, the test solution becomes very cloudy immediately upon adding the mastiche. (See Figs. 1 and 2.)

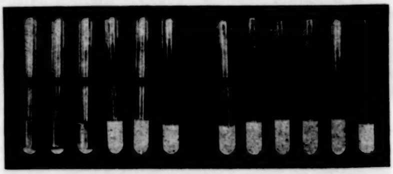

Fig. 1.—On the left is a fully developed, strongly positive test (paresis). On the right is a positive (very heavy clouding) test from a meningitis case. The right hand tube in each set is the control.

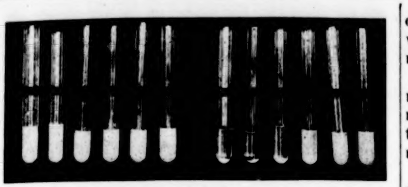

Fig. 2.—Both tests were made on the same fluid. The tubes at the left were set up about 15 minutes before the photograph was taken; on the right, 12 hours earlier. In the tests there is a marked difference between the control (clear) and other (cloudy) tubes. This does not show in the photograph.

An examination of our material shows that 48 of the positive cases showed precipitation. Practically all fresh fluids giving a strong paretic curve with the gold showed precipitation with mastiche.

As types, we may quote the following:

Gold		Mastiche
5 5 5 5 5 4 3 0 0 0	:	5 5 5 4 4 0
5 5 5 5 4 3 2 0 0 0	:	5 5 4 3 2 0
5 5 5 4 3 2 1 0 0 0	:	4 4 3 0 0 0

Cases of vascular neurosyphilis have given us weaker reactions with mastiche:

Gold		Mastiche
3 3 2 1 0 0 0 0 0 0	:	3 3 2 1 0 0
3 3 2 2 1 0 0 0 0 0	:	3 3 2 1 0 0
3 4 3 1 0 0 0 0 0 0	:	2 2 1 1 0 0

This is also true of the treated cases—where the gold reaction has become weaker, the mastiche reaction is also weaker. Thus in one case, the gold had come down to 0 0 1 2 2 2 2 1 1 0; mastiche 3 3 2 1 0. In one treated case, ventricular fluid gave a negative gold and a weakly postitive mastiche reaction.

We had three cases of acute non-syphilitic meningitis. In these cases neither the gold nor the mastiche reaction is of differential value. Of these the following is a type:

Albumen + + +; Globulin + + +; Cells 2000
Gold: 3 3 4 3 4 4 3 5 2 2; Mastiche: 4 4 4 3 3 0 —

It is well known by those who use the gold test that there is a fairly marked variation in reagent sensibility. Lowrey[3] has called especial attention to this point. Care and experience are required in making the reagent and *interpreting* the results. The mastiche reagent is simple and the interpretation is easy. Furthermore, it seems to be very accurate. Of a number of cases showing a positive gold (other tests negative), the following will serve as a type.

On the first examination all tests were negative except the gold, which read: 5 4 3 3 3 0 0 0 0 0. The mastiche was negative. On second testing, the gold (new reagent) was negative.

Because of these facts, it seems to us that the mastiche test, as modified by Cutting, has a distinct place in the clinical laboratory. Because of the ease and accuracy of examination it may well be used to determine in which cases the more complicated gold test should be done.

Our experience indicates that the test does not differentiate between lues and acute meningitis; hence the chances are that the reactions in tubercular meningitis and tumors will not be differential.

We feel that the facts presented in this paper demonstrate the accuracy and value of the mastiche test, and justify the conclusion that it has a place in the examination of spinal fluids, especially where, as is the case in this hospital, large numbers of spinal fluids are examined (about 40 a week). In all cases showing clouding with mastiche, a gold reaction should be performed as a final check.

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Clinical Department.

BOTULISMUS: REPORT OF TWO FATAL CASES.

By René Bine, M.D., San Francisco.

The increasing frequency of reports of cases of botulismus naturally leads to the belief that with an increased knowledge of symptomatology, more cases are being correctly diagnosed and recorded. The occurrence of botulism in California has been described by Dickson, the poisoning in his collection of fatalities having been due, with two exceptions, to eating vegetables or fruit which had been canned at home.

The bacillus botulinus has also been found in canned meats, canned fish, in sausages and in meat pâtés, which have caused typical symptoms of poisoning.

The following report concerns two cases where death followed the drinking of clam juice. As is often the case, the cause of death of the first patient was not discovered until the second instance of illness became known.

Case 1. The patient, a barkeeper, aged 44 years, had worked as usual until late Saturday night, Oct. 25, 1913. On the morning of the twenty-seventh he awakened at the usual time and, to his surprise, discovered that he was unable to swallow. Two physicians saw him that day, and on that evening he was removed to the hospital, presenting no signs other than his inability to swallow or move his tongue. Intestinal symptoms were absent.

Seen in consultation on Oct. 28, 1913, at 9 A.M., the following was noted: He was well developed and well nourished, with sensorium clear, and was able to make himself understood in response to questions by slight movement of his head. The tongue could not be moved. There was no involvement of facial muscles. The patient was unable to sit up alone, and his head dropped forward on chest or backward, according to change of position. All extremities were paretic; he was unable to resist passive motion, though able to move limbs very slightly. Pupils were very small and no reaction was elicited. There was definite lateral nystagmus of left eye; otherwise no demonstrable disturbances of eye muscles. Reflexes: triceps, biceps and knee-jerks were normal. Pharyngeal reflex, Oppenheim, abdominal and cremasteric reflexes were absent, with a question as to the left Babinski. Heart was normal, with full and slow pulse. Blood pressure 160. Lungs, abdomen, glands, etc., showed nothing of importance.

The patient admitted drinking daily 20 to 30 drinks of mixed variety. We were unable to get a history of his drinking anything different from what was his daily custom. It was thought that we were dealing with an acute, rapid, progressive bulbar paralysis, due either to poison ingested or to hemorrhagic softening of the pons and medulla, possibly on a syphilitic basis, in spite of there being no evidence warranting the diagnosis of lues. The prognosis seemed bad. It was felt that the patient could live but a few hours. Blood and spinal fluid were to be removed for examination that afternoon, but the patient died, in spite of the usual treatment, including artificial breathing, a few hours after our visit.

The case was reported to the coroner by the attending physician, the record showing that death had resulted from chronic myocarditis and parenchymatous nephritis. The case was not inquested.

CASE 2. A day or so after seeing Case 1, a medical friend of mine was telling me of an interesting case that he had seen. A neighbor of his, male, aged 24, had been taken sick with gastro-intestinal symptoms a couple of days after having partaken of clam juice served by a barkeeper who had since died. Except for slight symptoms, there was said to have been no after-effects in this case. On November 9, however, the patient was again taken quite sick and was seen by me, at 8 P.M., in consultation with the above-mentioned doctor.

The patient was found in bed, perfectly conscious, but hardly able to speak. The tongue could be protruded but very slightly. Breathing was rapid and shallow and the expression anxious. Pulse was small, weak, 140. Except for bilateral ptosis, the eye muscles were apparently normal. Ophthalmological examination was negative. Knee-jerks, abdominal and plantar reflexes were equal on the two sides. Motor power of the extremities was not impaired. Heart was normal and rapid. Lungs were negative, except for faint pleuritic rub at right axilla.

The patient was removed to a hospital in order to give him the advantage of the best of nursing and modern appliances, pulmotor, etc., but he succumbed at 2 A.M.

A third man also took some of the clam juice, but, except for slight gastro-intestinal symptoms, remained well.

A LONG UMBILICAL CORD, CAUSING THREE LOOPS AROUND THE NECK.

BY M. J. KONIKOW, M.D., BOSTON.

AN umbilical cord that was about 97 cm. long, and was coiled around the neck of a fetus three times, is such a rare occurrence that its report may be justified.

The particular cord belonged to a male child, born on May 14, 1917, to a 39-year-old quintipara. Except for the third stage, which, due, undoubtedly, to the condition of the cord, was somewhat prolonged, the delivery ran the usual normal course. It was a left occipitoanterior presentation, with the total labor lasting about 13 hours. Child weighed 8¾ lbs. and was slightly longer than usual. In spite of the three coils, which I easily succeeded in pulling down, one by one, over the born head, I had no trouble with the child's respiration. He cried lustily immediately after his birth.

Coiling of an umbilical cord around the neck or any other part of a fetus is so common that it was accepted by some prominent obstetricians, like Michaelis, Schroeder and Simpson, as a normal position of the cord. This view, however, is hardly shared by later or present obstetricians. Roughly speaking, the coiling occurs in one out of every four or five deliveries. One coil is the most frequent occurrence, two coils are rare, three or more coils are very rare. From my own obstetric experience, which approximately embraces about one thousand cases, this was my first case of an umbilical cord with three coils around the neck of the fetus.

In consulting the literature upon the subject, I find that some authors had reported even greater length of the umbilical cord and a greater number of its loops around the neck. So Karl Holzapfel[1] reported a case of a true knot, where the length of the umbilical cord reached 118 cm. Gottchalk[2] reported a case of a delivery, in a breech presentation, where the head was firmly held by a sling of the umbilical cord, the length of which was 92 cm. Strassman[3] saw a case where the umbilical cord was wound five times around the neck. Hamill[4] reported a case where the umbilical cord encircled the arm twice and the neck four times. Even as many as seven coils around the neck, with an umbilical cord 168 cm. long, had been observed and described by Wygodzky, as cited by A. Maener.[5] And yet it remained for R. M. Beach[6] to report a case of fetal death that was due to eight coils of the umbilical cord around the neck.

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THORACOPAGUS: AN UNUSUAL CAUSE OF DYSTOCIA. REPORT OF A CASE.

By Samuel Cline, M.D., Boston.

[From the service of Dr. Halsey De Wolf, Visiting Physician, Providence Lying-in Hospital.]

No apology is necessary for bringing to the attention of the profession details of an unusual fetal dystocia which, from its rarity, if for no other reason, is of especial interest.

Double monsters, for purposes of classification, are divided into three groups (Williams): (1) Dipagus, (2) Ischio-craniopagus, and (3) Thoracopagus.

While Williams speaks of the great difficulty of delivering all of these cases, he claims a comparative degree of ease in effecting the delivery of the third group, due to some degree of advantageous give "of the portion connecting the twins."

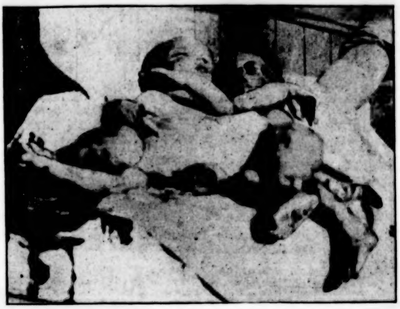
This case is of particular interest because of the close similarity between the actual mode of delivery and appearance of the children as compared with the academic description of such cases. We can find, in the literature, only four cases of this type of fetal dystocia, during the year 1916.

Mrs. L., 31 years old. Italian. Family history negative. Obstetrical history, five children, born normally. Past history, negative. Present condition: on April 1 was brought into the hospital, after 12 hours of labor. On entrance, pulse 96, temperature 98, respiration 26. Patient was in good condition and having good contractions. Attempts at delivery by a physician outside had resulted in the birth of the head and one shoulder of a good-sized child, which was dead.

Vaginal examination by Dr. DeWolf, soon after entrance, showed what appeared to be a hard mass connected with the child's sternum and tightly wedged under the pubic arch, preventing all further progress. This mass felt as if it might be an outgrowth of the sternum, possibly an osteoma. It was noticed that the child had a hare lip. Abdominal examination showed a uterus in tetanic spasm, the contractions, or rather contraction, being very severe. The only fetal part which could be felt was a large, hard, round mass in the right lower quadrant, which was believed to be either a second head, or possibly some abnormal growth (as an osteoma of the sacrum) of a single monster. No extremities could be felt.

As it was evident that it was impossible to deliver the infant by traction, and intra-vaginal manipulation being impossible on account of the size of the child's body, it was decided to amputate the infant below the scapulae. This done, a hand inserted into the uterus easily delivered the legs and pelvis of the child by version, when it became evident that the infant's body was connected with a second one within the uterus. It was now possible to do a version on the second fetus, though the extraction of the posterior shoulder and head were both difficult.

It was now seen that the supposed osteoma from the chest wall of the first child was the band connecting the two, which extended from the upper part of the sternum to the umbilicus, there being but one cord and placenta. The children thus were facing each other, connected by a skin and cartilaginous band.



Both fetuses were perfectly formed (except as noted below) and of the female sex. Their total weight was 11 lbs., 12 oz. They were connected along the entire length of the thorax, with about three cm. of tissue, in the band which joined them, the exact nature of which was not determined, as the specimen was preserved intact. The nourishment had been derived from one placenta, through one cord. As stated before, one fetus had a hare lip. Just below the umbilicus there was a failure to close the skin of the abdominal wall of each fetus, resulting in an extrusion of the intestine. The patient had an uneventful recovery, and was discharged two weeks after entrance.

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Book Review.

Applied Immunology. By B. A. Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Second edition revised. Philadelphia and London: J. B. Lippincott Co. 1916.

The first edition of this monograph from the William Pepper Laboratory of Clinical Medicine. was reviewed in the issue of the Journal for October 28, 1915 (Vol. clxxiii, p. 673). The early publication of this second edition is evidence that the book has met a professional demand for a practical, concise presentation of the more important phases of immunology and prophylactic, diagnostic and therapeutic applications of sera and bacterins. A number of additions have been made to the text of this new edition and some new matter is interpolated. The illustrations and appendices remain as before.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

THOROUGHNESS IN RAPID PHYSICAL EXAMINATIONS.

THE exigencies of war, especially when they are sudden and urgent, require the rapid physical examination of a vast number of men in the shortest possible time. These examinations must necessarily be conducted mainly by physicians whose training and experience fits them only for the slower, more deliberate methods of examination required in civil life. The question that naturally arises is whether such physicians can arrive at judgments sufficiently rapid to keep pace with the military need, or if they keep pace with such needs will they make proper judgments of fitness or unfitness in the very short time at their disposal? Military medical officers hold that thorough physical examinations can be made in about fifteen minutes and less. Of course this does not include the special laboratory, sensory and other examinations that might be needed to make definite determinations in doubtful instances. The fact is that in so far as the military requirements are concerned, an individual is either plainly fit or plainly unfit. Whether the military needs are so large or so urgent that no fit person must be allowed to go because of a doubt, or because a certain degree of deficiency must be accepted, special provisions must be made for the reëxamination of these, but the time consumed in these special examinations cannot be added to the general average time required in the examination of each individual. Similarly, in keeping with modern thought on the subject, defectives must not be arbitrarily discharged as unfit for any military duty, but specially examined to see whether there is not some special military duty they are fitted for. But in either instance, in doubt or in partial defect, the special examination is for individuals who have been primarily determined unfit.

If the ability and the powers of observation of the ordinary physician are acute enough, he can be relied upon to make competent examinations thoroughly. For military purposes, it is not expected that the examiner make refined differential diagnoses, nor must he fawn over or idle about a defect that is apparent upon first observation, nor speculate upon a condition of unusual interest or rarity. The examiner must only determine that there is a disqualifying pathological condition, and no more. This can be done in a very short time. And while it is true that there are clinical indications of doubtful significance, the number are too few to influence the net conditions of the examinations.

There is no doubt that medical examiners will pass into service the diseased and the unfit, and refuse the fit, but that would be expected to be the result of the personal equation of any class of men. Indeed, it has been said that the great number of the tubercular in the French military units was due to rapid and unthorough physical examinations. Positive cases can be detected, even with rapid examinations. Doubtful cases are hard to diagnose, even with significant symptoms and with the aid of laboratory or other appropriate guides. Rapid examinations do not mean snapshot diagnoses, but merely the passing of rapid judgments upon facts actually presented to the examiner. Doubt is often unjustly engendered by lingering too long upon a state of fact that would otherwise be rapidly and accurately disposed of.

As experience is gained in this sort of examination, the examiner will be quicker to discover conditions which even the better but slower and more deliberate clinician would fail to discover. For it must be remembered that as every phase of military medicine is different from civil medicine, this form requires special experience before aptitude is acquired. There need be no fear that this sort of examination will draft into the army the diseased, to infect the others, or the unfit to hamper the fit. The fact is that many able individuals become disabled, and many physical defectives become effectives under the military regimen. With ordinary care one condition makes up for the other, to keep the average the same. To be effective in this work, the medical examiner must only learn to make a diagnosis when the facts are before him, must develop his powers of observation, must learn to be quick in making his decisions,—indecision is fatal everywhere,—must learn to pass the rare and interesting cases by just as quickly as the ordinary one, without fondling it, and must learn not to spend too much time between each examination. The whole matter of thorough examinations, combined with speed, resolves itself into the elimination of time waste and duplication. These two elements mastered, no amount of speed must be feared. What advantage is the lengthening out of the time of examination, if it is at the cost of repetitions of hearing, seeing and feeling? The medical examiner must be able to see when he sees, hear when he hears, and feel when he feels, without repeating every sensory impression to make sure that it is so.

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DANGERS OF RADICAL GYNECOLOGIC SURGERY.

It had long been understood that there was some relation between certain nervous phenomena and the sexual apparatus. Indeed, the term "hysteria" has its origin because of this relationship between uterus and these nervous manifestations. Yet, although this relationship was acknowledged, it was based entirely upon empiricism. Not until the present understanding of the function of the so-called glands of internal secretion and the secretion itself—the hormone—did the true significance of this relationship dawn upon the profession. The nervous manifestations following disturbance or removal of the sexual apparatus need not follow out the type in hysteria as it is classically understood. It may assume any form, is usually progressive and severe. There is little doubt now, at least in so far as the ovaries are concerned, that the sexual apparatus has a double function, the obvious generative and the internal secretory. The internal secretion of the ovary is a hormone that increases the oxidation of the tissues, influences metabolism, increases the hemoglobin content of the blood, influences the respiratory exchange, and in general controls the sexual function in coöperation with the other glands of internal secretion—the endocrinic system. In this way, while the menstrual function ceases at menopause, the influence of the secretion of the ovaries continues after menopause, and the removal of the ovaries makes for a more rapid and violent menopause, with no recovery from the psychic manifestations accompanying the menopause. Even now, however, the exact operation of the ovarian internal secretion is merely a matter of conjecture. There is sufficient evidence, nevertheless, that the nervous disorders following destruction or removal of the generative organs, especially the ovaries, are not merely fanciful or "hysterical," but really organic in the sense that the symptoms are the results of tissue or molecular changes in the nervous system caused by the lack of the special secretion evolved by the ovaries.

The removal of the uterus and adnexa, but especially of the ovaries, must not be undertaken except with this danger entirely in view. The loss of the generative function after radical operation is the least of the evils of surgical treatment. Operation on the generative apparatus must not be undertaken except on distinct and palpable organic changes which allow of no other treatment. This really simmers down to malignancy. Of course, the drainage of pus or other pathological fluids or correction of malpositions are not included in this question. Medical treatment of many of the conditions for which operation is so frequently advised has had good results. It must be generously tried out, if for no other reason than to postpone radical operation for as long a period as possible. And when operation is finally decided upon, it must be most conservative. The fact that there is some disease of the ovaries does not necessitate the removal of the whole of them. It is true that very often radical surgery gives the least shock, allows of speedier recovery and affords the best surgical technic, but these advantages must not militate in favor of radical operations in gynecological cases. The principle of gynecologic surgery should be the removal of the least amount of tissue consistent with pathological indications of the strictest construction and not with the best surgical technic. In so far as the continuance of menstruation and the absence of nervous symptoms are concerned, even the retention of the smallest amount of ovarian tissue will conserve function and prevent nervous disorder. Except in malignant disease, there are very few instances of ovarian disease where some healthy tissue cannot be isolated from the mass of unhealthy tistue.

Finally, much of the disease relating to the generative organs—mechanical, traumatic and a great deal psychic—is highly amenable to medical, mechanical or psycho-analytic treatment.

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TETANUS PROPHYLAXIS.

Although the total number of cases of infection with the tetanus bacillus is not very large, perhaps principally because the wound incidence in civil life is spread out very thin among the communities, the disease is, nevertheless, more frequent than is commonly supposed. The form most commonly met is that of the new-born consequent on removal of the umbilical cord. But when a vast number of wounded are assembled, as in the present war, the tetanus problem becomes a very important one and one very hard to solve. The tetanus bacillus is spore-bearing, anaerobic and very virile. It is difficult to destroy, even with high temperatures, except when the fractional method of sterilization is employed. Antiseptics seem to be of little avail against this bacillus. The spore will retain its vitality for months and even years, in the dust of old walls or cellars, especially when protected from the sunlight. The fact that the bacillus may exist in the intestines of herbivorous animals, especially the horse, may have some relation to the frequency of tetanus among the soldiers wounded on the battlefield.

The successful treatment of tetanus is still very unsatisfactory, the mortality being almost absolute. However, the prophylactic treatment of all who are exposed to infection has given remarkable results. In this respect, the recognition of suspicious wounds is most important. It is best to consider every wound as suspicious that is inflicted in the habitat of the tetanus bacillus. This applies especially to wounds that are deep punctures or that are much contused and lacerated. Wounds involving such of the compact tissues as the aponeuroses and the tendons are particularly liable to infection, especially when the wounds are gangrenous. Mixed infection of a wound with pyogenic or even saprophytic bacteria aid the development of the tetanus bacillus because by the use of oxygen for themselves they make conditions in the wound even more anaerobic. The size of a wound, however, is of no import. Even very small abrasions may harbor infection. The contact of non-infected wounds with the infected wounds or dressings may cause infection; and even suspicious cases should be isolated to prevent contact.

Generous incisions of all suspicious wounds and the injection of tetanus antitoxin are the two means of preventing the development of tetanus. Where both measures cannot be carried out, the antitoxin treatment should be chosen because it is the most effective of the two measures. The limit of certain protection by prophylactic injections does not outlast a period of 48 hours, nor does the protective effect of the serum last longer than 10 or 12 days. If the wound is not healed, then a new protective injection must be made. Injections are best made into or around the principal nerve supplying the region of the wound. It should be made between the wound and the spinal cord, in order to block the flow of toxin along the nerves from wound to nervous system. But such radical procedures as laying the nerve bare for injection is not generally countenanced. The usual prophylactic dose of tetanus antitoxin is 1500 units. In Europe, where the question of economy is a very vital one, the dose is often as low as 20 units with satisfactory results. It has been suggested that the application to the wound of absorbent cotton, previously soaked in antitoxin and then dried, would be an efficacious means of prophylactic treatment when not feasible otherwise, the secretion from the wound liberating the antitoxin continually while in contact with the wound.

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WAR MEDICINE.

Most of us are inclined to think of the work of the medical officer in war time as entirely surgical in nature, and to ignore entirely the purely medical needs of the field. It is true that no estimate can be formed as to the proportion of medical and surgical work in warfare, but neither can a sharp line be drawn between purely medical and purely surgical work. In any event, the military organizations have at least the same medical morbidities as the civilians, reduced only by the fact that the soldier is a picked person physically, whose resistance is expected to be greater than that of the civilian. On the other hand, this reduction is balanced by the unusual mode of living during actual warfare,—exposure, stress, etc.,—and creates work for the physician rather than for the surgeon. Moreover, if it is remembered that the laboratory workers, radiographers, neurologists, etc., although directly assisting the work of the surgeon, are not engaged in actual surgery, it can be seen that the work of the medical officer in war time embraces a varied field. Even in the actual surgical cases, the work of the physician comes in in the after-care, the convalescence and the like. The large number of actual mental and nervous disturbances, the direct results of action, still further increases the proportion of non-surgical cases. The physician who hesitates to join the military forces because he has neither the actual surgical experience nor the surgical temperament, is laboring under a delusion as to the needs of the military medical services. Surgical work fills in only a small intermediary part of the soldier's medical care in warfare. The examination of the soldier for service, the care of his health, the sanitary organizations, diagnosis, after-care and convalescence, are all in the hands of the physician. This arrangement is a fortunate one because it allows the surgeon and his surgical endeavors to assume a higher degree of specialization when relieved of the previous or subsequent responsibilities of the case. War surgery, and even war medicine, must be treated from a different angle than civil surgery or medicine. Both the physician and the surgeon must undergo special training before they can successfully cope with the new phases presented in military conditions. The large field for medicine presented in war times offers an opportunity for every medical man engaged, to develop the side of his abilities for which he is best fitted. It does not follow that one whose previous training was entirely medical will not develop the surgical side of his abilities in the field. The war will give many a man an opportunity to find himself, for there is, perhaps, no other field that has developed to such a high degree as medicine and which can utilize so much new material. The introduction of the psychiatrist into the field will give a large impetus to the study of the etiology of mental and nervous disorders, but particularly to their prevention and treatment.

While expert surgeons are needed in the field, the pride of modern war surgery has been that there is need of less operation—less amputations— and yet more saving of life and limb because of better diagnoses and greater care. But the born surgeon will soon find his place, no matter in what branch he starts or what his previous training. There need be no fear that there may be too many physicians and too few surgeons. The law of supply and demand will hold here as elsewhere. Even in civil life many excellent surgeons have been made from the general medical practitioner.

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MEDICAL RESERVE CORPS.

The new department of the Army Medical Corps created by the Surgeon-General, to be devoted to reconstruction and reëducation of crippled soldiers, calls for an added number of enlistments from the medical profession into the Medical Reserve Corps, to care for this branch of the service. Major Joseph Colt Bloodgood, of Baltimore, chairman of the committee on preparedness of the Southern Medical Association, has sent a letter to physicians who are engaged in first-aid work in industries, requesting that if their relation to the industries of this country have given them any experience in the problem of vocational reëducation and of finding new employment for the reëducated handicapped industrial worker, they communicate with him.

Major Edgar King, Medical Corps, U.S.A., has been placed in charge of the work. Whether he be medical or non-medical, whoever, by reason of his contact with this problem in industrial lines, has gained special experience, can be of assistance to the department at this time. He is urged to send his name and credentials to the Surgeon-General's office and offer his services.

Major Bloodgood urges the necessity of filling the ranks of the Medical Corps with trained men, and called attention to the need of men with special training in orthopedics, brain surgery, and plastic surgery of the face. To graduates in medicine, commissioned in the Medical Reserve Corps, he states that Major Brackett, in charge of the orthopedic group; Captain Bagley, in charge of the brain group; and Captain Blair, in charge of the oral and plastic surgery group, are anxious to get a number of young men who have had good hospital experience and some general surgical training, to take an intensive training in one of these specialties and to prepare them to go into one of these groups.

Those who are not commissioned in the Medical Reserve Corps fall in the following groups:

1. Physically unfit. There is no question as to this exemption, but the probabilities are that you are able to perform your duties in civic life, and you should try in some way to release an equally trained man who is physically fit. Perhaps you could substitute for one who is in a public health position, or one who is a teacher. It would be unusually helpful if you could form a partnership with a man of equal training, but physically fit, who is prevented from going for financial reasons, and divide your increased earnings with this man.

2. Teachers in medical schools. The Surgeon-General feels that it is imperative not to weaken the faculties of the medical schools, but members of the teaching staffs should do all in their power to release as many as possible among their number who are physically fit and have some special training, filling their places with men of equally good training who are not teaching, but who are physically unfit for service.

3. Public health officials. All agree that the state and city public health departments of this country should not be weakened. It is as important for the success of this great drive for democracy to protect the health of those at home as that of the soldiers. However, there are many opportunities for substitution here. Look for a man of equal training, but physically unfit, temporarily to take your place in the public health work. It might be possible in some cases for him to perform the duties of a public health official and to look after some general practice, or some specialty in medicine or surgery.

4. Many well trained and young graduates in medicine have been prevented from entering the Medical Reserve Corps because of dependents or financial obligations which cannot be met by the salary of even a Major in the Medical Reserve Corps. Apparently there is only one way for such men to be released for service in the army. They must find someone with about the same training, either aged over 55, or with some physical defect, and form some partnership with him so that the increased earnings of the one who remains at home will, to a large extent, protect the one who volunteers for the Medical Reserve Corps.

* * *

ERADICATION OF RATS.

We are gratified to learn that a nation-wide campaign against rats is to be inaugurated by the Federal Government under the direction of the Bureau of Biological Survey, in connection with Mr. Hoover's work for food conservation, and that already the chairmen of the public safety committees of the separate states have been requested to organize local educational, publicity and extermination wars against this dangerous pest.

Through the work of the Women's Municipal League of Boston during its last winter's campaign, this section was well informed of the rat menace to both health and property, and it is much to be regretted that, in spite of the endorsement of all the commercial, civic and professional bodies, including the Suffolk District Medical Society, the rat-proofing law, that would have ultimately protected this city against an invasion of bubonic plague, was allowed to be tabled.

It has been editorially suggested by the local press that Mrs. Albert T. Leatherbee, who managed that campaign, should have the directorship of this State movement, and we believe that Mr. Endicott could make no better choice in giving her the appointment, which her experience and knowledge of the rat problem warrant. Certainly, to the medical profession of the State, with which she has been associated from birth, this appointment would be pleasing, and there is no doubt that Mrs. Leatherbee would prosecute the work with intelligence and vigor.

* * *

Proposed Hospital on Gallop's Island.—Plans to convert Gallop's Island into a hospital for convalescent wounded American soldiers returning from European battlefields are under advisement. Dr. R. Creel, Assistant Surgeon-General of the United States Public Health Service, visited the Island recently to inspect the existing buildings.

MEDICAL NOTES.

REQUEST FROM THE SURGEON-GENERAL.—The following request has been received from Major C. L. Furbush:

"The Surgeon-General directs me to invite your attention to the following:

He is arranging for special treatment for wounded, including special efforts for functional restoration of damaged parts and vocational reëducation for those who, from the nature of their illness or injury, are unable to follow their previous occupation.

It will be a very great help if he can know just what those who are suffering from chronic illnesses or who are partly disabled as a result of injuries, are now doing in the United States. As example, one having lost the right hand may still be a successful carpenter or a market gardener; one having lost both lower extremities may be sucessful in some line; one with chronic heart disease may have found a suitable occupation. The collection of this experience should be of remarkable assistance as showing what the various types can do. The information desired in reference to each case is as follows:

(*a*) Character of disability, medical or surgical.

(*b*) At what is the patient employed and how successful is he?

(*c*) In what way did he learn or enter his occupation after his injury or illness?

The names of the disabled are not necessary.

If any man who has been successful after an injury or illness desires to write a short autobiography stating his experiences, the same might be exceedingly useful in this work, in preparing a booklet to be distributed to the men at the proper time."

POLIOMYELITIS IN ILLINOIS.—On September 30 there were under observation in Chicago, Ill., 139 cases of poliomyelitis.

TUBERCULOSIS CONFERENCES.—The National Association for the Study and Prevention of Tuberculosis announces the programs of the six sectional conferences, to be held in October and November. These conferences are expected to be of vital importance to anti-tuberculosis workers and all others interested in the tuberculosis campaign by reason of the fact that the sessions will be devoted almost exclusively to war problems. The North Atlantic Tuberculosis Conference was held in Baltimore on October 17 and 18; the New England Conference, in Rutland, Vt., on October 4 and 5; Mississippi Valley Conference in Minneapolis and St. Paul, Minn., on October 8, 9 and 10; and the Northwestern Conference in Portland, Ore., October 15 and 16. The Southwestern Conference will be held in Grand Canyon of Arizona, October 22 and 23; and the Southern Conference in Chattanooga, Tenn., on November 9 and 10.

WAR NOTES.

SENIOR MILITARY MEDICAL ASSOCIATION.—William Duffield Robinson, chairman of the Senior Military Medical Association, has published a circular letter in explanation of the purposes of the organization of this society. He states as follows:

"Surgeon-General Gorgas called a representative committee of the older physicians to Washington for conference, and it was there arranged that an organization of the physicians past the age of fifty-five years (the age limit for admission to the Army and Navy Reserve Medical Corps) should be formed, and that it should also admit physicians under fifty-five years if they are kept at home by reason of teaching in medical schools or being unable to pass the severe medical examination required for admission to said Medical Corps.

The Senior Military Medical Association was then formed, and at a largely attended meeting the following officers were elected: president, W. W. Keen, M.D.; vice-presidents, James M. Anders, M.D., and John B. Deaver, M.D.; secretary-treasurer, C. B. Longnecker, M.D. A board of censors and an executive committee were also elected.

The purpose of the Association is to serve the government by performing such medical work as the members are capable of, especially at or near the member's residence. Its members mostly can do only part-time work, but some are able to go from home and do full-time service. The arrangement will probably be a contract with the government to do special service, with a military grading. The pay will be according to the grading and work performed.

It is felt that the members of the Association can act as consultants in general and special physical conditions of recruits and conscripted men; also, in matters of sanitation and hygiene, and in making general physical examinations and mental and special examinations and in working in local hospitals or established places or cantonments where the sick or injured men may be sent; or those where fitness may be brought about in men medically rejected from admission to the service; also in performing any other work they may be capable of by the direction of the government.

No assurance can at present be given as to when service may be requested. Men may apply for admission to the S. M. M. A. by filling out the blank card, which will be supplied upon request to Dr. Alexis Dupont Smith, Philadelphia, and returning it properly filled out and one dollar, the annual dues made necessary to cover postage and incidental expenses.

For the present, residential limit of eligibility for membership includes Pennsylvania, New Jersey, Delaware and Maryland. When points remote from Philadelphia have organized units or branches of the S. M. M. A., membership may be transferred."

Death from Typhus of Allied Prisoners.—An escaping French prisoner of a German camp is reported to have stated that 3700 French and British soldiers and 1500 Russian soldiers have died from typhus at the German concentration camp at Cassell, near Frankfort-on-the-Main.

Opening of Soldiers' Hospital.—The New England Deaconess Association has erected, beside its hospital on Pilgrim Road, Longwood, a portable hospital unit for the use of sick and wounded soldiers and sailors. It was formally opened on October 15 by Edwin H. Hughes, resident bishop of the Methodist Episcopal church. The hospital is equipped with thirty-five beds, including three private rooms for special cases, and is practically the same as those now in use as field hospitals in France. The cost of the unit furnished ready for service will be between $5000 and $6000. It has been named the "Willard T. Perrin Ward of the New England Deaconess Association for Sick and Injured Soldiers and Sailors." The committee which has had the construction in charge consists of William T. Rich, chairman, Dr. Daniel Fiske Jones, Clarence W. Williams, Willard T. Perrin, Miss A. A. Betts, Mrs. F. H. Eaves, Miss Ellen T. Emerson and Mrs. H. C. Gallagher.

War Relief Funds.—On Oct. 13 the totals of the principal New England war relief funds reached the following amounts:

French Wounded Fund	$268,964.05
Armenian-Syrian Fund	236,305.25
Permanent Blind Fund	124,643.99
Surgical Dressings Fund	124,374.08
Serbian Fund	124,207.42
French Orphanage Fund	123,493.42
Polish Fund	87,844.86
Italian Fund	49,082.77
War Library Fund	41,560.45
Russian Refugees' Fund	38,734.14
La Fayette Fund	31,847.03
War Dogs' Fund	1,443.25

BOSTON AND MASSACHUSETTS.

Massachusetts State Conference of Charities.—The fourteenth session of the Massachusetts State Conference of Charities will be held in New Bedford, October 24, 25 and 26. The meeting will be opened on Wednesday evening by an address by Robert A. Woods, president of the conference, on "The State as the Great Community." Joseph Lee will speak on "Ethical Gains Through Legislation in the Last Twenty-five Years." On Thursday, October 25, the topic will be "The American Red Cross in War Time" and "State-Wide Services, Public and Private in Relation to the Needs and Resources of the State." On Friday, October 26, under the heading of "A New Epoch in Americanization," the representative of the immigrant department of the Young Men's Christian Association and the secretary of the new State Immigration Department will speak.

Appointments to Boston Health Department.—Mayor Curley has appointed Dr. Philip Castleman to the position of deputy health commissioner in charge of the division of laboratories. Dr. Castleman has been acting deputy health commissioner since the resignation of Dr. Slack in June. Dr. Van de Velde, a Belgian, has received the appointment of bacteriologist. He was born in Belgium in 1868, and received his degree of M.D. from the University of Louvain in 1894. He then took special courses at the Pasteur Institute, Paris, and the Institute of Hygiene, Rome.

In 1896, in a competition in pathological sciences among the four universities of Belgium, he was classed first. From 1894 to 1899 he was first assistant to Prof. Senyo in the Institute de Bacteriologie de Louvaine; in 1900 director of the bacteriological laboratory of the province of Antwerp; delegate in 1905 to the international congress of hygiene, Paris; in 1907, delegate of the government to the international congress of hygiene at Bordeaux; in 1910, medical member of the Belgian mission sent abroad to study campaigns against plague and rats; and honored by King Albert with the first-class civic cross for services during the cholera epidemic; and in 1914-1915 ship surgeon on the steamship *Java* of the Japan line.

Dr. Van de Velde arrived in San Francisco June 7, 1915, and on July 15 passed, in Boston, the State Board of Medicine examination with an average of 80.2.

Boston Board of Health.—During the week ending October 6, 1917, the number of deaths reported was 185, against 209 last year, with a rate of 12.49, against 14.33 last year. There were 27 deaths under one year of age, against 34 last year.

The number of cases of principal reportable diseases were: diphtheria, 72; scarlet fever, 16; measles, 23; whooping cough, 16; typhoid fever, 10; tuberculosis, 48.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever, 6; typhoid fever, 1; tuberculosis, 2.

Total deaths from these diseases were: diphtheria, 1; tuberculosis, 20.

Included in the above were the following non-residents: tuberculosis, 1.

Reduction of Infant Mortality in Boston.—The August Bulletin of the Health Department of Boston contains the following note regarding the reduction of infant mortality in this city:

"For the thirty-one weeks of this year, ending September 1, there has been an appreciable decrease in the number of deaths in infants under one year, as compared with the same period last year. This is a commendable and gratifying result obtained by much effort on the part of the various organizations, associations and parents working for this common end. The efforts that have been made are justifiable in view of the fact that there has been a decrease of 7% in the number of deaths over last year. Education, milk stations, together with constant and regular visits by nurses to the homes before and after childbirth, have accomplished much in this work. The figures this year show a sufficient reduction to warrant a decreased infant rate over the figure of 1916. The month just passed showed a reduction of more than 30% over last August, and surely this is most encouraging in view of the fact that the past summer has been very hot and extremely trying to infants.

Inspection of Fish.—Boston ranks as one of the largest fish markets in the world, 100,000,000 pounds of fish being annually brought in by boats and 50,000,000 by other vehicles. That this amount of fish requires constant supervision and inspection is brought out by the fact that during August there were condemned at one receiving depot 8000 pounds of salt herring, 600 pounds of salt mackerel, 18,100 cod, 200 pounds alewives, and 2800 pounds salt cod. The cod and mackerel were not sufficiently salted to preserve them, owing to a scarcity of salt in some of the fish-packing towns, and they became decomposed during the hot weather of August.

Bequest to School and Hospital.—By the will of the late Norman H. George the Harvard Dental School and the Boston Floating Hospital are each recipients of a gift of $10,000. The Newton Hospital receives a part of the residue of the estate.

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The Massachusetts Medical Society.

STATED MEETING OF THE COUNCIL.

A stated meeting of the Council was held in John Ware Hall, Boston Medical Library, Wednesday, October 3, 1917, at 12 o'clock, noon. The president, Dr. Samuel B. Woodward, was in the chair, and the following 84 councilors present:

Barnstable,
C. W. Milliken.

Berkshire,
Henry Colt.

Bristol North,
W. O. Hewitt.
F. A. Hubbard.

Bristol South,
E. F. Curry.
W. A. Dolan.

Essex North,
T. R. Healy.
R. V. Baketel.
G. E. Kurth.
E. H. Noyes.
J. J. O'Sullivan.

Essex South,
C. H. Bangs.
R. E. Bicknell.
W. T. Hopkins.
J. B. Macdonald.
W. G. Phippen.
Emile Poirier.
R. E. Stone.

Franklin,
G. P. Twitchell.

Hampden,
T. S. Bacon.
R. A. Greene.

Middlesex East,
E. S. Jack.

Middlesex North,
W. B. Jackson.
J. H. Lambert.
E. G. Livingston.
M. A. Tighe.

Middlesex South,
G. T. Tuttle.
H. T. Baldwin.
F. E. Bateman.
E. H. Bigelow.
C. H. Cook.
John Duff.
Edward Mellus.
C. E. Mongan.
Godfrey Ryder.
L. F. Sise.
F. R. Stubbs.
Julia Tolman.
G. W. Whiting.
Alfred Worcester.

Norfolk,
E. H. Brigham.
A. N. Broughton.
C. B. Faunce.
R. W. Hastings.
G. W. Kaan.
Bradford Kent.
W. C. Kite.
Joseph Kittredge.
W. A. Lane.
S. H. Rubin.
Victor Safford.
H. F. R. Watts.

Norfolk South,
C. S. Adams.
G. H. Ryder.

Plymouth,
N. K. Noyes.
A. A. MacKeen.

Suffolk,
H. F. Vickery.
E. S. Boland.
W. L. Burrage.
E. A. Codman.
J. A. Cogan.
E. G. Cutler.
R. L. De Normandie.
Albert Ehrenfried.
C. M. Green.
J. B. Hawes, 2d.
W. C. Howe.
H. T. Hutchins.
J. L. Morse.
G. G. Sears.
G. C. Smith.
G. G. Smith.
Mary A. Smith.
A. K. Stone.

Worcester,
M. F. Fallon.
F. H. Baker.
W. P. Bowers.
David Harrower
A. G. Hurd.
W. L. Johnson.
F. H. Washburn.
C. D. Wheeler.
S. B. Woodward.

Worcester North,
A. P. Mason.

It was voted to dispense with the reading of the records of the last meeting.

Two reports of the Committee on Membership and Finance were presented by Dr. C. M. Green, Chairman, and each was accepted and its recommendations adopted unanimously.

Report on Membership.

The Committee on Membership and Finance makes the following recommendation as to membership:

That the following named Fellows be deprived of the privileges of fellowship, under the provisions of Chapter I, Section 8, of the by-laws:

Brown, Melvin James, of Mars Hill, Maine.
Sullivan, James Francis, of Lowell.

For the Committee on Membership and Finance,

Charles M. Green, *Chairman.*

Report on Finance.

The Committee on Membership and Finance makes the following recommendations as to finance:

1. That the affiliation with the Boston Medical and Surgical Journal be continued during the year 1918, at an expense to the Society of three dollars ($3.00) for each member in good standing.
2. That the sum of one hundred dollars ($100.00) be appropriated to meet the expense of clerical assistance to the Secretary during the months of October, November and December of the current year.

For the Committee on Membership and Finance,

Charles M. Green, *Chairman.*

Dr. E. H. Bigelow, Chairman of the Committee on Public Health, made a few remarks, calling attention to the success of the recent Convocation and School of Instruction for Massachusetts Health Officials, Boston, September 4-7, 1917, through the activity of the agent of the committee, Edward A. Ingham. He said that this society had stood back of the committee in a splendid way, and the committee was very much pleased with the attendance and with the result of those meetings.

The petitions for reinstatement of the following were acted on favorably by the Council: E. E. Doble, Lena V. Ingraham, A. C. Leach, J. F. R. Biron, J. C. Stammers, and W. J. Johnstone. The petition of W. J. Brickley for reinstatement was referred to the following committee: Gerald Blake, F. H. Lahey, and F. S. Kellogg.

The president nominated and the Council appointed the following as delegates to the annual meeting of The Vermont State Medical Society, at Barre, Vt., Oct. 11 and 12, 1917: J. E. Urquhart, Ashfield; and A. T. Marshall, Chelsea, Vt.

The president nominated and the Council appointed the following as delegates of the Society to the Conferences on Medical Education, Health and Public Instruction, and Medical Legislation, respectively, under the auspices of the American Medical Association, at Chicago, Ill., in February, 1918: H. C. Ernst, Boston; E. H. Bigelow, Framingham; and S. B. Woodward, Worcester.

The privileges of the floor were voted to Dr. Albert Evans, who introduced the following preambles, with explanations:

> *Whereas*, In the address of Mr. Edwin Mulready, Commissioner of Labor, to the Massachusetts Medical Society, on the occasion of its last Annual Meeting, there was a tone of appeal to the Massachusetts Medical Society for assistance in the right solution of pressing problems confronting the State Board of Labor and Industries; and
>
> *Whereas*, Great changes are taking place at present in industry for the reason that so many men have entered the Army that women and children are being crowded in to take their places; and
>
> *Whereas*, While the effect of this movement on the population will be watched carefully by those who have an eye to the welfare of our people, medical investigation becomes more and more necessary to interpret the results; and
>
> *Whereas*, Large plants are being erected for the manufacture of poisonous gases, and those who work in these establishments are subject to great hazards, many of which are imperfectly understood by the workers, and several of these hazards are at present waiting investigation;

And on motion by Dr. F. H. Washburn, the following resolution was passed unanimously:

> *Resolved*, That a committee of five, one member of which shall be a Councilor, be appointed by the Chair to work in coöperation with the State Board of Labor and Industries.

The Chair appointed the following committee: Albert Evans, Harry Linenthal, Arthur A. Howard, John T. Williams, and Frank G. Wheatley.

Dr. J. B. Blake made the following report as to the attendance of the Massachusetts delegation at the House of Delegates of the American Medical Association last June, that was accepted and placed on file:

> The entire Massachusetts delegation was present at the 1917 meeting of the House of Delegates; all answered the first roll-call. This was the first meeting in which the House of Delegates was in charge of its own chairman, elected last year to this office; in previous years the president of the American Medical Association has acted also as chairman of the Delegates; the new arrangement worked admirably and will be continued.
>
> A large amount of business was disposed of, including many resolutions offering assistance in various forms to the Government. The resignation of Dr. W. T. Councilman as trustee, was received with much regret. Dr. Wendell C. Phillips of New York was elected in his place. After Dr. Arthur Dean Bevan of Chicago was elected president for next year, practically by acclamation, Dr. E. H. Bradford of Boston was nominated for 1st Vice-President (by Dr. John Bapst Blake), and was immediately elected without any competitor. Dr. Walter B. Cannon was reappointed (by Dr. Mayo) to the Committee on Health and Public Instruction. Chicago was chosen as the place for the next annual meeting. The House of Delegates adjourned on Thursday, June 7th, after having accomplished a large amount of business, having listened to many extremely interesting reports, all of which will be found in the columns of the *Journal of the American Medical Association*.
>
> John Bapst Blake.

A letter from Dr. E. H. Bradford, Chairman of the Committee to look into the matter of an academic chair of Military Medicine in the Commonwealth, was read by the Secretary. Dr. Bradford reported that thus far he had received a contribution of $300 toward the founding of such a chair.

The president read a letter from the Boston agent of the Liberty Loan Committee, calling attention to the fact that the new loan was ready for subscription.

Upon nomination by the President, Dr. S. J. Mixter of Boston was elected a councilor for Suffolk in place of John Warren, resigned.

Dr. A. K. Stone, Chairman, reported for the Committee on Health Insurance. He said that several meetings had been held and that members of the committee had attended the hearings of the special commission at the State House, and that a stenographer had reported them. The reports have appeared in the Journal for the benefit of the members; they give everybody some idea of what is taking place in the minds of the commission, and also some idea of what is being presented to them. If anyone has any ideas upon social insurance, if he will kindly transmit them to the chairman, he will see that they are presented to the commission. There may be a chance at this time for some constructive work to be done, so that a bill may be introduced that shall in no way harm the medical profession. He suggested that the Council would be glad to hear from Dr. W. A. Dolan of Fall River, who had attended the first meeting of the commission in the State outside the State House, held in his own city Oct. 2. Dr. Dolan thought that the difference between this meeting and the one held a year ago was very pronounced. A year ago the interest centered on old-age pensions, with a very slight mention of health insurance, whereas the meeting this year introduced health insurance as the main topic of the evening, and everybody was interested in it. There was a large attendance of mill-owners and mill operators. The leaders of labor, very bright men, were there, and all had their say. The manufacturers were represented by Mr. Robert Bond, a very keen lawyer, and a man interested in medical work and in legislation on medicine and sanitation. It was made very plain that the labor man demands health insurance, but non-contributory.

Dr. W. L. Johnson of Uxbridge complimented the labor leaders in Fall River for seeing something which the leaders in the State House do not see. He emphasized the fact that the medical profession ought to be represented on the committees, as at present there is a dearth of doctors on them. He said, if we are well represented, we shall find the medical profession stands stronger than ever before.

Dr. A. N. Broughton, Chairman of the new Committee on Workmen's Compensation, said that he had no report to make; that the main work for the coming months will be to acquaint the profession and the labor interests themselves that they have a new law.

Dr. C. E. Mongan said that there is no doubt in the minds of those who have attended the health insurance hearings that the profession of medicine is facing a crisis as far as the practice of medicine is concerned; for the practice of medicine is no longer a private matter, but a public profession. The public are deeply interested in their own health, and manufacturers are insisting on caring for the health of their employees. He called the attention of the Council to the following articles on this subject: "Adequate Medical Service of the Future," Otto P. Geier, M.D., Cincinnati; and "The Framingham Health and Tuberculosis Demonstration," D. B. Armstrong, M.D., Framingham, Mass. Both of the articles are to be found in the *Journal of the American Medical Association*, September 29, 1917, Vol. lxix, No. 13, pp. 1041, 1051.

Dr. Broughton had suggested that the Commission write to the presidents and secretaries of the district societies when a hearing is to be held in a given district, and he understood that it had done so, and he hoped that the district officers will insure a good attendance at the hearings. He inquired if the Committee on Health Insurance had expressed an opinion as to whether any health insurance legislation is desirable.

Dr. Stone said that the committee has expressed no opinion, but has discussed only the general proposition.

Dr. Broughton said that it seemed to him that the matter of the utmost importance at the present time, where every district of doctors is tied up with war problems, either directly or indirectly, was to put over the whole affair, and that we should use our influence to postpone any possibility of immediate action. He thought that there is a large number of men who know nothing about the commission, and he felt that the commission is anxious to get the opinion of the individual doctors throughout the State in an informal way.

Dr. E. S. Jack said that, at a recent meeting of the Middlesex East District Medical Society a series of papers on health insurance was read. A vote was passed that on account of the social unrest,—which does not promise to be any less after the war is over,—together with the vastness of the subject, it was considered undesirable to have any legislation on health insurance passed at present. He then referred to the good results which had been brought about in Melrose by the agitation of the subject of public health, and by the establishment of a guild in connection with the hospital, all of which had tended to a better condition of the people, and an increased interest in health problems by the public.

The president made a few remarks, stating that he had attended many hearings and meetings, and had favored postponing legislation on health insurance.

Adjourned at 12.55 noon.

Walter L. Burrage,
Secretary.

Obituary.

MOSES G. PARKER, M.D.

Moses G. Parker, M.D., a veteran of the Civil War, died at his home in Lowell, Mass., on October 1. Dr. Parker was born in Dracut in 1842, graduated from Phillips Andover Academy, and in 1864 received his degree from Harvard Medical School. He then enlisted with the 57th Massachusetts Infantry and received a commission as assistant surgeon. After the war, he spent two years in study abroad and established himself in practice in Lowell, Mass. Dr. Parker was closely identified with the development of the telephone, having been early an advocate of its usefulness. When the New England Telephone and Telegraph Company was organized he was made a director, and held that position until his death. He was also prominent in genealogical research and patriotic work, and was a member of the Society of Colonial Wars, the Society of Colonial Governors, and the Sons of the American Revolution. Of the latter society he was at one time vice-president-general and he was also past president of the Massachusetts S. A. R. Dr. Parker was well known in his profession as an eye and ear specialist. He was a Fellow of the Massachusetts Medical Society and local medical societies. He never married.

Miscellany.

DEPARTMENT FOR MILITARY ORTHOPEDICS.

THE Surgeon-General made the following announcement today of the organization of a new Department for Military Orthopedics:

The very large percentage of the casualties of the present war which require special orthopedic method in their treatment (from 30-40%) and the large percentage of these cases when so treated that can be restored to military usefulness (from 70-75%) has led the Surgeon-General to create an organization to care for these cases. This will be designated "The Department for Military Orthopedics," and will have to do with the work that is required both at home and abroad.

Major Elliott G. Brackett, M.R.C., has been appointed Director of Military Orthopedics, with headquarters at the Surgeon-General's office.

Major David Silver, M.R.C., has been appointed Assistant Director of Military Orthopedics, with the same headquarters as the Director.

For the Expeditionary Forces, while the work will be under the authority of the Director, nevertheless, so much special organization will be required that the office of "Director of Military Orthopedics for the Expeditionary Forces" has been created, and Major Joel E. Goldthwait, M.R.C., has been appointed to fill that position.

Associated with him and to serve as Assistant Directors, Major Robert B. Osgood, now serving with U. S. Base Hospital No. 5, and Capt. Nathaniel Allison, now serving with U. S. Base Hospital No. 21, will be transferred from their present positions to this department. Major Osgood will be temporarily assigned to Col. Robert Jones, the Director of Military Orthopedics for the British Forces, for the study of details of organization and methods of treatment, and Capt. Allison will be temporarily assigned to similar study with the French and Italian forces.

For the assistance of the Directors, an Advisory Orthopedic Board has been created and is made up as follows: Dr. Robert W. Lovett, Boston, Mass.; Dr. Albert H. Freiberg, Cincinnati, Ohio; Dr. G. Gwilym Davis, Philadelphia, Pa.; Dr. F. H. Albee, New York, N. Y.; Dr. John L. Porter, Chicago, Ill.

The classification adopted, of the conditions to be considered orthopedic, is practically the same as that in use by the British Government, and is as follows:

(*a*) Derangements and disabilities of joints, including ankylosis.

(*b*) Deformities and disabilities of the feet, such as hallux valgus, hallux rigidus, hammer toes, metatarsalgia, painful heels, flat- or claw-feet.

(*c*) Malunited or ununited fractures.

(*d*) Injuries to ligaments, muscles, and tendons.

(*e*) Cases requiring tendon transplantations or other treatment for irreparable destruction of nerves.

(*f*) Nerve injuries complicated with fractures or stiffness of joints.

(*g*) Cases requiring surgical appliances, including artificial limbs.

Since prescribed and regulated work is one of the most valuable therapeutic agencies that is in use in the great orthopedic hospitals abroad, the development of the so-called Curative Work Shop is a natural part of the general orthopedic equipment, and since the reëducation and training for industry is a natural development of this, a special advisory committee, to be called the Active Vocational Board, has been appointed and is as follows: Dr. Royal Meeker, Labor; Dr. David Edsall, Medico-Vocational; Mr. John E. Wilder, Industrial and Employment; Mr. Charles E. Stone, Industrial and Employment; Dr. Dean Lewis, General Surgery.

All affairs relating to military orthopedic surgery will pass through this department, and when bearing the signature of any of the three Directors may be regarded as official and representing the policy of this department.

E. G. BRACKETT,
Major, M.R.C., U.S.A.

SALVARSAN SWINDLE UNCOVERED.

THE Department of Health of New York City has succeeded in unearthing a swindler who manufactured and marketed imitation neosalvarsan. The investigation, which began in June, came to a climax when Nicholas Clements was indicted. The prisoner was charged with grand larceny, forgery and conspiracy. According to Commissioner Emerson, a suspicious looking lot of neosalvarsan was encountered by Inspector Cohen of the Health Department's Bureau of Food and Drugs, of which Mr. Lucius P. Brown is director. The Inspector investigated, and on June 20 succeeded in obtaining ten tubes of what purported to be neosalvarsan, but which in reality was nothing but a little common salt, to which some yellow coloring matter had been added. Through persistent search, a second lot of the product was obtained some time later from a Third Avenue druggist. This lot was evidently indentical with the first.

During the recent session of the American Medical Association held in New York City, the Department of Health displayed samples of imitation neosalvarsan which had been discovered by its inspectors. As in the other cases just mentioned, the lot there exhibited consisted merely of common salt with yellow coloring matter. How extensive this fraudulent traffic has been may be gauged from the fact that the maker of this product had ordered 50,000 aluminum containers, made in imitation of those in which the genuine article is supplied.

According to Mr. Hugh W. Taylor, chief of the Health Department, Division of Drug Inspection, the traffic in this neosalvarsan was facilitated by the European War. Because of the difficulty in obtaining their regular supplies of neosalvarsan, physicians have readily been induced to purchase this drug from speculators at an advanced price. This has rendered the substitution of a false product, put up in imitation of the original, a very simple matter. Mr. Taylor displayed a number of tubes of this product seized by his men, and it was almost impossible to distinguish the imitation from the genuine. The printing on the label and circular has evidently been reproduced photographically, for it appears to be identical with the original. The embossed cap on the aluminum container is also cleverly imitated. There is a slight difference in the appearance of the product, but even this difference is not sufficient to warn any but an expert or a physician who is constantly using this product.

The traffic in the product must have been very lucrative. The small tubes cannot have cost more than five or ten cents each to prepare, and they were sold to physicians for from $5.50 to $9.00 each, depending upon the urgency shown by the physician. The original product sells for $4.50.

Through persistent detective work, Inspector Cohen finally traced the supply to an individual styling himself as "Doctor" Nicholas Clements of 2323 Belmont Avenue, The Bronx, and he accordingly arrested Clements on the charge of violating Section 116 of the Sanitary Code. On Wednesday of last week, the police finally captured the manufacturer of the lot of false neosalvarsan exhibited by the Department of Health at the meeting of the American Medical Association. This individual, Arthur Thommasses, was charged with grand larceny and held in $5000 bail.

When Clements was arrested, the interesting discovery was made that, not only was he manufacturing neosalvarsan, but that he was also engaged in selling false medical and dental diplomas.

The clues discovered were at once vigorously followed up. In this part of the investigation, Commissioner Augustus Downing, of the State Department of Education, rendered valuable assistance. His Department had suspected Clements for some time, but had been unsuccessful in securing sufficient facts to warrant his arrest. The first of the unlicensed "doctors" to be apprehended was a Dr. Lazinsky of East Ninth Street, Manhattan. According to Lazinsky, Clements sold him a diploma which upon examination proved to be false, and assured him that he would have no trouble in practising without a license because he, Clements was an inspector of the New York State Medical Association. This apparently was true, for among Clements' papers seized by the police, is a framed letter dated October 31, 1902, and signed "James Taylor Lewis," as Counsel for the New York State Medical Association, appointing him to this position.

"The results of this investigation," said Health Commissioner Emerson, "are of the greatest importance, for the work of these unscrupulous crooks threatened the life of thousands of people. It will be weeks before we can gain any idea of the extent of these frauds. In the case of Thomasses, one of the manufacturers of imitation neosalvarsan, the traffic apparently ran into thousands of dollars. One lot alone, now in the possession of the Department of Health, was valued at $1800, though, of course, it is not worth a cent. We have repeatedly warned physicians to beware of these false products, and in June we exhibited a lot of Thomasses' output at the meeting of the American Medical Association. Apparently as the result of our publicity, most of the recent sales were made to wholesale drug houses who wanted the drug for export. How much was thus sold outside of this city we shall never know. I have sent warning concerning this false product to health officials throughout the country and have asked the United States Public Health Service also to transmit this warning to the consular service."

CHILD LABOR LAW UNCONSTITUTIONAL.

It seems almost incredible that in this age, in a country whose people pride thmselves on their interest in humanity, it would be possible to declare unconstitutional a law prohibiting child labor.

This law was scheduled to go into effect on September 1. Under its terms no child under 14 years of age may work in any factory, mill, workshop or cannery, whose products are subject to regulation by Congress under the interstate commerce clause of the Constitution.

The law also prohibits the employment of children under 15 longer than eight hours a day, and they may not be employed between seven o'clock at night and six o'clock in the morning. Children must be more than 16 years to work in mines or quarries.

According to press dispatches, Federal Judge James E. Boyd, sitting at Greensboro, N. C., decided that the law was unconstitutional on the ground that Congress had exceeded its powers under the interstate commerce clause of the Constitution, and that under the fifth amendment a parent has the right to the services of his child, and the child has a right to work for his support.

We are not familiar enough with the legal interpretations of the interstate commerce section of the Constitution to judge whether the law as passed exceeded the powers granted to Congress. We cannot help marvel, however, at the operations of a legal mind which can find that a child labor law either deprives a person of "life, liberty or property without due process of law," or takes "private property for public use without just compensation," for these are the provisions of the fifth amendment to the Constitution.

LEGAL ADVICE FOR HEALTH OFFICIALS.

At a recent meeting of Massachusetts Boards of Health, Mr. James J. Ronan, a lawyer of Salem, Mass., made an address on the legal aspect of nuisances. In the course of his remarks he showed that the local board of health is almost supreme and is vested with higher authority than other city boards and committees. He stated that, in the first place, a city or town is not liable for the acts of a public officer and consequently not amenable for any conduct on the part of a member of the board of health which might have entailed some loss to a citizen and, in the next place, the members themselves are not responsible to an individual for failure to perform their duty, and are not liable, as are other public officials, for acts of negligence. In the matter of correcting public nuisances, he emphasized the importance of selecting the right statute under which to proceed when property rights are involved. To act under the General Nuisance Law, which makes no provision for trial by jury, is oftentimes to lose a case in litigation, but to act under the offensive trade statute or some other special law, is to assure trial by jury. He stated:

"This is well illustrated by the statutes governing offensive trades. Undoubtedly, because of the large amount of capital frequently invested in manufacturing plants and their industrial advantages to a community, it has been deemed desirable that the board of health should not have the final say in such matters, and consequently in the determination of whether any trade or employment is a nuisance or hurtful to the inhabitants or dangerous to the public, or is attended by injurious or offensive odors, while the board may prohibit the nuisance within the limits of the city or town or any place other than is assigned by the board, yet the property owner has the right to appeal from such orders of prohibition, and have a trial by jury in the superior court for the final determination of this question of fact While the matter is pending in court, the prohibited trade or employment cannot be carried on until there is judgment in favor of the property owner. In all such cases where the board is concerned with an employment or trade it will be necessary to proceed under the provision of the statute regulating offensive trades and not under the general statute."

SOCIETY NOTICES.

East Boston Medical Society.—Dr. Benjamin Tenney will address a meeting of the Society on "Urinary Calculi," on Thursday, October 23, 1917.

J. B. Taylor, M.D., *Secretary*.

Suffolk District Medical Society.—A stated meeting of the Society will be held on Wednesday, October 24, 1917, at the Boston Medical Library, 8 The Fenway, at 8.15 p.m.

Business: Election of Nominating and Auditing Committees.

Paper: "Repeated Caesarean Section," Dr. J. Whitridge Williams, Baltimore.

Discussion by Drs. Edward Reynolds, F. S. Newell, H. T. Swain and N. R. Mason.

Refreshments after the meeting.

Gilbert Smith, M.D., *Secretary*.

Censors' Examination.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, Nov. 1, 1917, at 4 p.m.

Candidates, who must be residents of Suffolk District or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply from 2 to 4 p.m. to

George Gilbert Smith, *Secretary*.

99 Commonwealth Avenue.

RECENT DEATHS.

John Myrick Crocker, M.D., died at Cambridge, October 6, 1917, aged 72. He was born in Provincetown, May 22, 1845, was graduated from the Harvard Medical School in the class of 1866, joined the Massachusetts Medical Society in that year and settled in Cambridge. He was a member of the American Medical Association. He is survived by a widow and one daughter.

George Plummer Howe of Boston, Lieutenant, Medical Officers' Reserve Corps, was killed in action in France, September 28, 1917. The son of Dr. Octavius T. Howe, he was born in Lawrence in 1878. He was a graduate of Harvard College in the class of 1900, and of the Harvard Medical School in 1904, then serving as surgical house officer at the Boston City Hospital and joining the Massachusetts Medical Society in 1908. He settled in practice in Lawrence. He moved to Boston in 1915 and became assistant dermatologist to the Carney Hospital. Dr. Howe had made four trips to the Arctic as surgeon or scientist and had also been to Yucatan on a scientific expedition sent by Harvard University. He married Marion Dudley Endicott of Boston in 1911, and she survives him.